5200-N Series User's Manual

Third Edition, April 2006

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1

Introduction

The 5200-N Series of advanced serial device servers make it easy to network enable your serial devices. The 5200-N Series includes 4 models: 5210-N/5210-N-T (2 ports for RS-232), 5230-N/5230-N-T (1 port for RS-232; 1 port for RS-422/485), 5232-N/5232-N-T (2 ports for RS-422/485), and 5232I/5232I-N-T (2 ports for RS-422/485, with isolation protection). In this manual, we refer to the four products collectively as “5200-N” or “5200-N Series.”

The following topics are covered in this chapter:

- **Overview**
- **Package Checklist**
- **Product Features**
- **Product Specifications**

Overview

5200-N Series serial device servers are designed to easily make your industrial serial devices Internet ready. The compact size of 5200-N device servers make them the ideal choice for connecting your RS-232 (5210-N/5230-N/5210-N-T/5230-N-T) or RS-422/485 (5230-N/5232-N/5232I-N/5230-N-T/5232-N-T/5232I-N-T) serial devices—such as PLCs, meters, and sensors—to an IP-based Ethernet LAN, making it possible for your software to access serial devices from anywhere over a local LAN or the Internet.

5200-N serial device servers ensure the compatibility of network software that uses a standard network API (Winsock or BSD Sockets) by providing TCP Server Mode, TCP Client Mode, and UDP Mode. Using 5200-N Series' Real COM drivers, software that works with COM ports can be set up to work over a TCP/IP network, without modifying your serial COM software applications. This excellent feature preserves your software investment and lets you enjoy the benefits of networking your serial devices instantly.

5200-N serial device servers support automatic IP configuration protocols (DHCP, BOOTP) and manual configuration via the handy web browser console. Both configuration methods ensure quick and effective installation. With 5200-N's Windows Utility, installation is very straightforward, since all system parameters can be stored and then copied to other device servers simultaneously.

Package Checklist

5200-N Series products are shipped with the following items:

Standard Accessories

- 1 5200-N 2-port serial device server
- Documentation & Software CD
- 5200-N Series Quick Installation Guide

Optional Accessories

- DK-35A DIN-Rail Mounting Kit (35 mm)
- CBL-RJ45M9-150 RJ45 (8-pin) to DB9 (M) cable, 150 cm
- CBL-RJ45F9-150 RJ45 (8-pin) to DB9 (F) cable, 150 cm
- CBL-RJ45M25-150 RJ45 (8-pin) to DB25 (M) cable, 150 cm
- CBL-RJ45F25-150 RJ45 (8-pin) to DB25 (F) cable, 150 cm

NOTE: *Notify your sales representative if any of the above items are missing or damaged.*

Product Features

5200-N Series device servers have the following features:

- Make your serial devices Internet ready instantly
- Versatile socket operation modes, including TCP Server, TCP Client, and UDP
- Easy-to-use Windows Utility for installing multiple device servers
- Compact size
- Auto detectable 10/100 Mbps Ethernet port
- 2- or 4-wire RS-485 (5230/5232/5232I/5230-T/5232-T/5232I-T) with patented ADDC™ (Automatic Data Direction Control)
- Built-in 15 KV ESD protection for all serial signals

- SNMP MIB-II supported for network management
- Pair Connection mode for connecting two serial devices over a network without a PC
- Reverse Telnet

Product Specifications

LAN

Ethernet	10/100 Mbps, RJ45
Protection	Built-in 1.5 KV magnetic isolation

Serial Interface—5210-N/5210-N-T

Interface	RS-232
No. of Ports	2
Port Type	RJ45 (8-pin)
Signals	TxD, RxD, RTS, CTS, DTR, DSR, DCD, GND
Serial Line Protection	15 KV ESD for all signals

Serial Interface—5230-N/5230-N-T

Interface	RS-232, RS-422/485	
No. of Ports	2 (1 port for RS-232, 1 port for RS-422/485)	
Port Type	Terminal Block (5 pins per port)	
Signals	RS-232:	TxD, RxD, RTS, CTS, GND
	RS-422:	Tx+, Tx-, Rx+, Rx-, GND
	RS-485 (2-wire):	Data+, Data-, GND
	RS-485 (4-wire):	Tx+, Tx-, Rx+, Rx-, GND
Serial Line Protection	15 KV ESD for all signals	
RS-485 Data Direction	ADDC™ (Automatic Data Direction Control)	

Serial Interface—5232-N/5232I-N/5232-N-T/5232I-N-T

Interface	RS-422/485	
No. of Ports	2 (for RS-422/485)	
Port Type	Terminal Block (5 pins per port)	
Signals	RS-422:	Tx+, Tx-, Rx+, Rx-, GND
	RS-485 (2-wire):	Data+, Data-, GND
	RS-485 (4-wire):	Tx+, Tx-, Rx+, Rx-, GND
Serial Line Protection	15 KV ESD for all signals	
	5232I has 2 KV isolation protection	
RS-485 Data Direction	ADDC™ (Automatic Data Direction Control)	

Power Line Protection

4 KV Burst (EFT), EN61000-4-4

2 KV Surge, EN61000-4-5

Advanced Built-in Features

Buzzer

Real-Time Clock

Watch Dog Timer

Serial Communication Parameters

Parity	None, Even, Odd, Space, Mark
Data Bits	5, 6, 7, 8
Stop Bit	1, 1.5, 2
Flow Control	RTS/CTS (for RS-232 ports only), XON/XOFF
Transmission Speed	110 bps to 115.2 Kbps

Software Features

Protocols	ICMP, IP, TCP, UDP, DHCP, BOOTP, Telnet, DNS, SNMP, HTTP, SMTP, SNTP	
Utilities	Device Server Administrator for Windows 95/98/ME/NT/2000/XP	
Real COM Drivers	Windows 95/98/ME/NT/2000/XP COM driver	
Configuration	5210-N/5230-N/ 5210-N-T/5230-N-T	Web Browser, Serial/Telnet Console, or Windows Utility
	5232-N/5232I-N/ 5232-N-T/5232I-N-T	Web Browser, Telnet Console, or Windows Utility

Power Requirements

Power Input	12 to 48 VDC
Power Consumption	5210-N: 305 mA at 12V (max.)
	5230-N: 347.1 mA at 12V (max.)
	5232-N: 359.6 mA at 12V (max.)
	5232I-N: 509.4 mA at 12V (max.)

Mechanical

Casing	IP30 protection, aluminum case (1 mm)	
Dimensions (W × H × D)	5210-N/5230-N/5232-N/ 5210-N-T/5230-N-T/5232-N-T (including ears)	90 × 100.4 × 22 mm 3.54 × 3.95 × 0.87 in
	5210-N/5230-N/5232-N/ 5210-N-T/5230-N-T/5232-N-T (without ears)	67 × 100.4 × 22 mm 2.64 × 3.95 × 0.87 in
	5232I-N/5232I-N-T (including ears)	90 × 100.4 ×35 mm 3.54 × 3.95 × 1.37 in
	5232I-N/5232I-N-T (without ears)	67 × 100.4 × 35 mm 2.64 × 3.95 × 1.38 in

Gross Weight	5210-N/5210-N-T: 0.135 kg (0.30 lb) 5230-N/5230-N-T: 0.140 kg (0.31 lb) 5232-N/5232-N-T: 0.119kg (0.26 lb) 5232I-N/5232I-N-T:0.157 kg (0.35 lb)
Installation	DIN-Rail, Wall Mounting

Environmental

Operating Temperature	0 to 55°C (32 to 131°F), 5 to 95%RH -40 to 75°C for "-T" versions
Storage Temperature	-20 to 85°C (-4 to 185°F), 5 to 95%RH

Regulatory Approvals

EMC	FCC Class A, CE Class A
Safety	UL, CUL, TÜV
WARRANTY	5 years

2

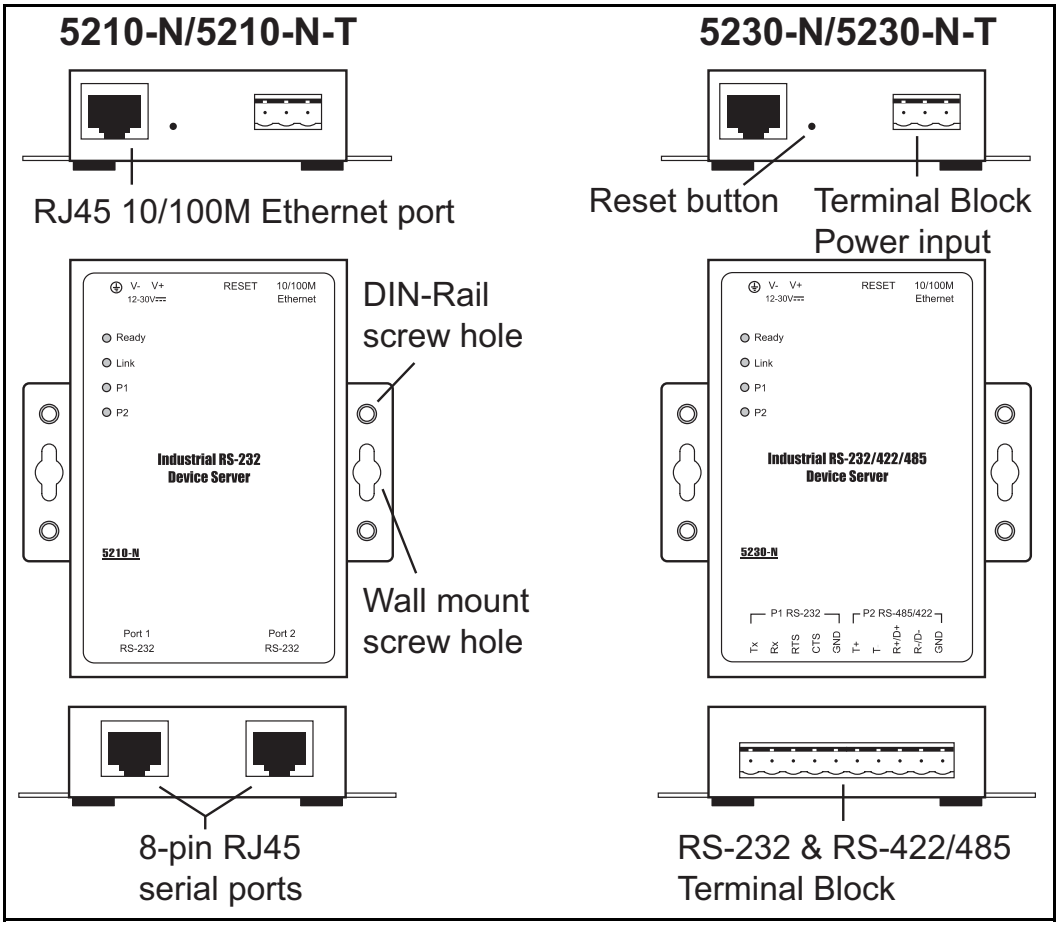
Getting Started

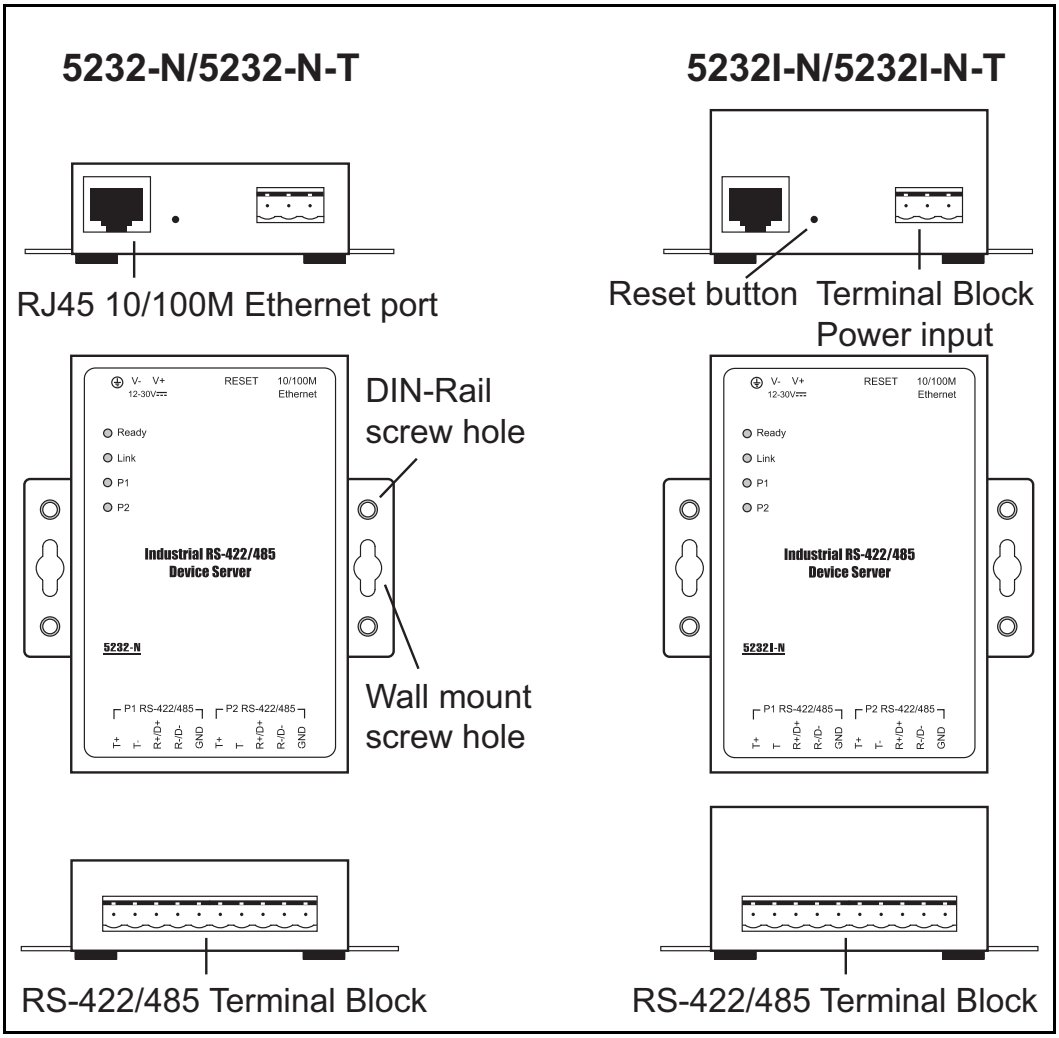
This chapter explains how to install the 5200-N device servers. Software installation is covered in subsequent chapters.

The following topics are covered in this chapter:

- **Panel Layout**
- **Connecting the Hardware**
  - Wiring Requirements
  - Connecting the Power
  - Grounding 5200-N
  - Connecting to the Network
  - Connecting to a Serial Device
  - LED Indicators

Panel Layout




5232-N/5232-N-T
5232I-N/5232I-N-T
RJ45 10/100M Ethernet port
Reset button
Terminal Block
Power input
DIN-Rail
screw hole
Wall mount
screw hole
V- V+
12-30V
RESET
10/100M
Ethernet
Ready
Link
P1
P2
Industrial RS-422/485
Device Server
5232-N
5232I-N
P1 RS-422/485
P2 RS-422/485
T+
T-
R+/D+
R-/D-
GND
RS-422/485 Terminal Block
RS-422/485 Terminal Block

Connecting the Hardware

This section describes how to connect 5200-N to serial devices for the initial test. We cover **Wiring Requirements**, **Connecting the Power**, **Grounding 5200-N Series**, **Connecting to the Network**, **Connecting to a Serial Device**, and **LED Indicators**.

Wiring Requirements

ATTENTION

Safety First!

Be sure to disconnect the power cord before installing and/or wiring your 5200-N.

Wiring Caution!

Calculate the maximum possible current in each power wire and common wire. Observe all electrical codes dictating the maximum current allowable for each wire size.

If the current goes above the maximum ratings, the wiring could overheat, causing serious damage to your equipment.

Temperature Caution!

Please take care when handling 5200-N. When plugged in, 5200-N's internal components generate heat, and consequently the casing may feel hot to touch.

You should also heed the following:

- Use separate paths to route wiring for power and devices. If power wiring and device wiring paths must cross, make sure the wires are perpendicular at the intersection point.

  NOTE: Do not run signal or communication wiring and power wiring in the same wire conduit. To avoid interference, wires with different signal characteristics should be routed separately.
- You can use the type of signal transmitted through a wire to determine which wires should be kept separate. The rule of thumb is that wiring that shares similar electrical characteristics can be bundled together.
- Keep input wiring and output wiring separate.
- We strongly advise that you label wiring for all devices in the system.

Connecting the Power

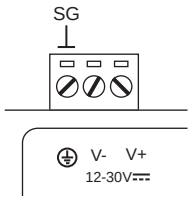
Connect the 12-30 VDC power line with 5200-N's terminal block. If the power is properly supplied, the "Ready" LED will glow a solid red until the system is ready, at which time the "Ready" LED will change to green.

Grounding 5200-N

Grounding and wire routing help limit the effects of noise due to electromagnetic interference (EMI). Run the ground connection from the ground screw to the grounding surface prior to connecting devices.

ATTENTION

This product is intended to be mounted to a well-grounded mounting surface such as a metal panel.



SG: The *Shielded Ground* (sometimes called *Protected Ground*) contact is the left most contact of the 3-pin power terminal block connector when viewed from the angle shown here. Connect the SG wire to an appropriate grounded metal surface.

Connecting to the Network

Connect one end of the Ethernet cable to 5200-N's 10/100M Ethernet port and the other end of the cable to the Ethernet network. If the cable is properly connected, 5200-N will indicate a valid connection to the Ethernet in the following ways:

- The Ethernet LED glows a solid green when connected to a 100 Mbps Ethernet network
- The Ethernet LED glows a solid orange when connected to a 10 Mbps Ethernet network
- The Ethernet LED will flash when Ethernet packets are being transmitted or received

Connecting to a Serial Device

Connect the serial data cable between 5200-N and the serial device. Serial data cables are optional accessories for 5210-N. Refer to Chapter 1 under **Optional Accessories** for information about the RJ45-to-DB25 and RJ45-to-DB9 cables.

LED Indicators

The top panels of all 5200-N device servers have four LED indicators, as described in the following table.

LED Name	LED Color	LED Function
Ready	red	Steady on: Power is on and 5200-N is booting up Blinking: Indicates an IP conflict, or that the DHCP or BOOTP server did not respond properly
	green	Steady on: Power is on and 5200-N is functioning normally. Blinking: The device server has been located by Administrator's Location function
	off	Power is off, or power error condition exists
Ethernet	orange	10 Mbps Ethernet connection
	green	100 Mbps Ethernet connection
	off	Ethernet cable is disconnected, or has a short
P1, P2	orange	Serial port is receiving data
	green	Serial port is transmitting data
	off	No data is being transmitted or received through the serial port

3

Initial IP Address Configuration

When setting up your 5200-N for the first time, the first thing you should do is configure the IP address. This chapter introduces the methods that can be used to configure the device server's IP address. ***Select one of the initial IP Address configuration methods to configure 5200-N's IP Address.*** For more details about network settings, see the ***Network Settings*** section in Chapter 5, ***Web Console Configuration.***

The following topics are covered in this chapter:

- **Initializing 5200-N's IP Address**
- **Factory Default IP Address**
- **5200-N Administration Suite** ← *recommended configuration method*
- **ARP**
- **Telnet Console**
- **Serial Console (19200, n, 8, 1)**

Initializing 5200-N's IP Address

1. Determine whether your 5200-N needs to use a Static IP or Dynamic IP (either DHCP or BOOTP application).
2. ***If 5200-N is used in a Static IP environment,*** you can use 5200-N Administration Suite, ARP, Web Console, Telnet Console, or Serial Console to configure the new IP address.
3. ***If 5200-N is used in a Dynamic IP environment,*** you can use 5200-N Administration Suite, Web Console, Telnet Console, or Serial Console to configure 5200-N to get an IP address dynamically with DHCP, DHCP/BOOTP, or BOOTP.

ATTENTION

Consult your network administrator to learn how to reserve a fixed IP address for your 5200-N in the MAC-IP mapping table when using a DHCP Server or BOOTP Server. For most applications, you should assign a fixed IP address to your 5200-N.

Factory Default IP Address

5200-N device servers are configured with the following default private IP address:

Default IP address: 192.168.127.254

(IP addresses of the form 192.168.xxx.xxx are referred to as private IP addresses, since it is not possible to access a device configured with a private IP address directly from a public network. For example, you would not be able to ping such a device from an outside Internet connection. 5200-N applications that require sending data over a public network, such as the Internet, require setting up the server with a valid public IP address, which can be leased from a local ISP.)

5200-N Administration Suite

5200-N Administration Suite consists of useful utility programs that are used to configure and manage your 5200-N device server.

See Chapter 5 for details on how to install the 5200-N Administration Suite, and how to use this suite of useful utilities to set up IP addresses and configure your 5200-N Series serial device servers.

ARP

You can use the ARP (Address Resolution Protocol) command to set up an IP address for your 5200-N. The ARP command tells your computer to associate the 5200-N's MAC address with the intended IP address. You must then use Telnet to access the 5200-N, at which point the device server's IP address will be reconfigured.

ATTENTION

In order to use this setup method, both your computer and 5200-N must be connected to the same LAN. You may also use a cross-over Ethernet cable to connect the 5200-N directly to your computer's Ethernet card. Your 5200-N must be configured with the factory default IP address—192.168.127.254—before executing the ARP command, as follows.

1. Obtain a valid IP address for your 5200-N from your network administrator.
2. Obtain 5200-N's MAC address from the label on its lower panel.
3. Execute the 'arp -s' command from your computer's MS-DOS prompt by typing:

   ```
   arp -s 192.168.200.100 00-90-E8-xx-xx-xx
   ```

   where 192.168.200.100 is the new IP address and 00-90-E8-xx-xx-xx is the MAC address for your 5200-N. (Be sure to use the actual IP address and MAC address for your 5200-N.)
4. Next, execute a special Telnet command by typing:

   ```
   telnet 192.168.200.100 6000
   ```

Once this command is issued, a **Connect failed** message is displayed, as shown here. After the 5200-N reboots, its IP address will be updated to the new address, and you can reconnect using Telnet, Web, or Administrator to check if the update was successful.

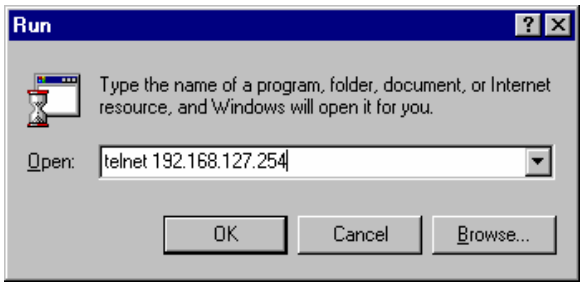
Telnet Console

Depending on how your computer and network are configured, you may find it convenient to use network access to set up your 5200-N's IP address. This can be done using Telnet.

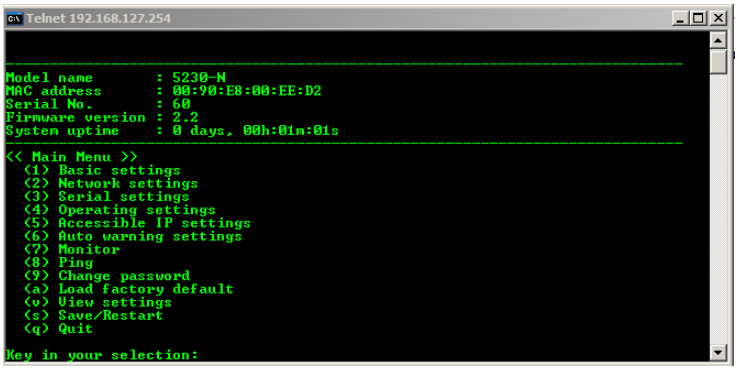
ATTENTION

Figures in this chapter were generated using 5230.

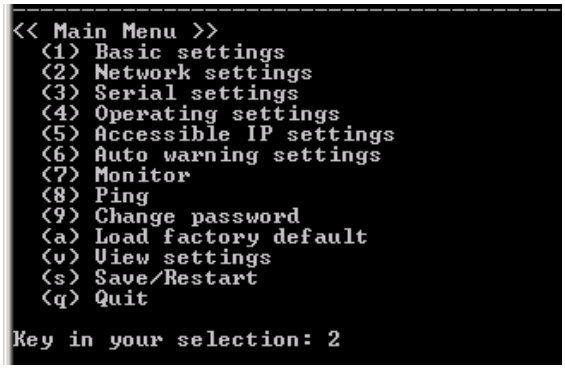
1. From the Windows desktop, click **Start** and then select **Run**.
2. Type `telnet 192.168.127.254` (use the correct IP address if different from the default) in the **Open** text input box, and then click **OK**.



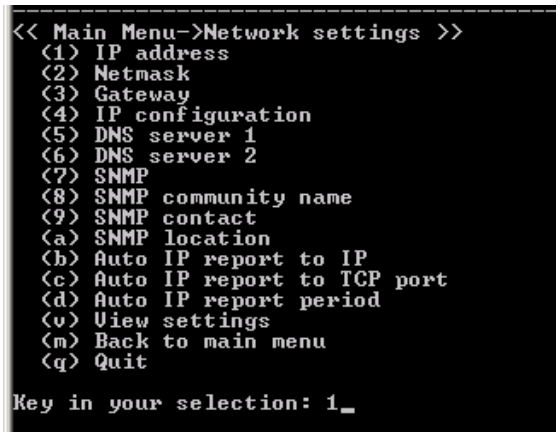
3. When the Telnet window opens, if you are prompted to input the **Console password**, input the password and then press **Enter**.
   Note that this page will only appear if the 5200-N is password protected.



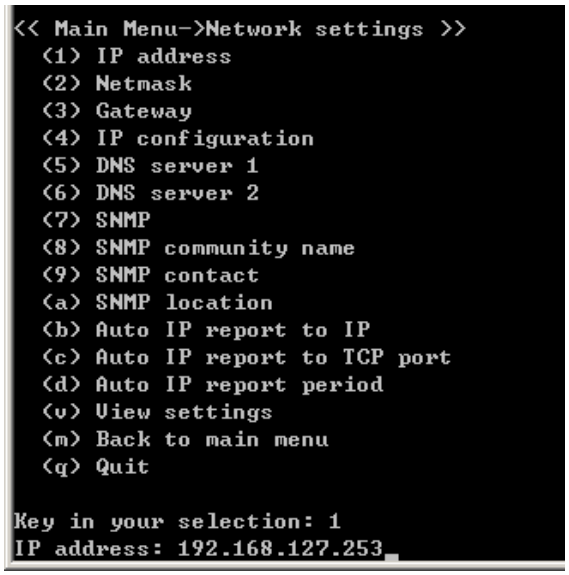
4. Type **2** to select **Network settings**, and then press **Enter**.



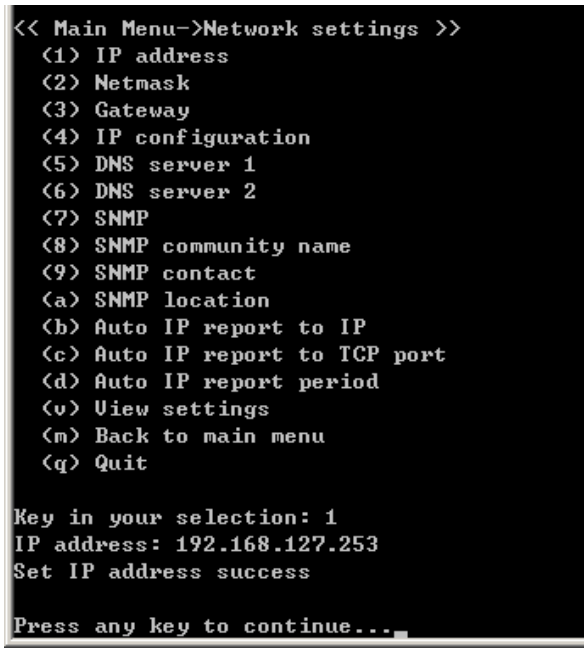
5. Type **1** to select **IP address** and then press **Enter**.



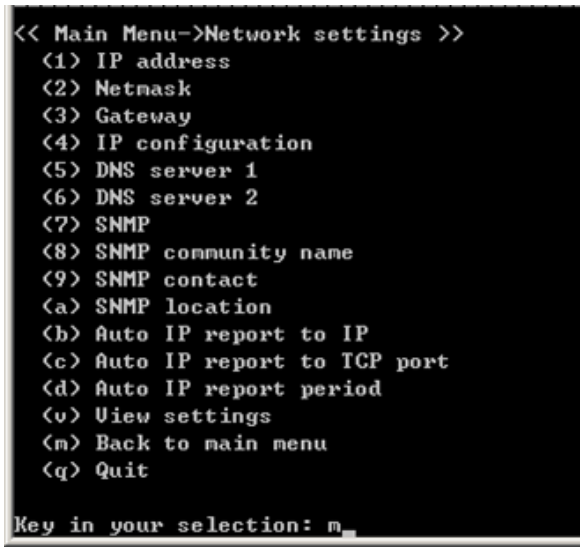
6. Use the **Backspace** key to erase the current IP address, type in the new IP address, and then press **Enter**.



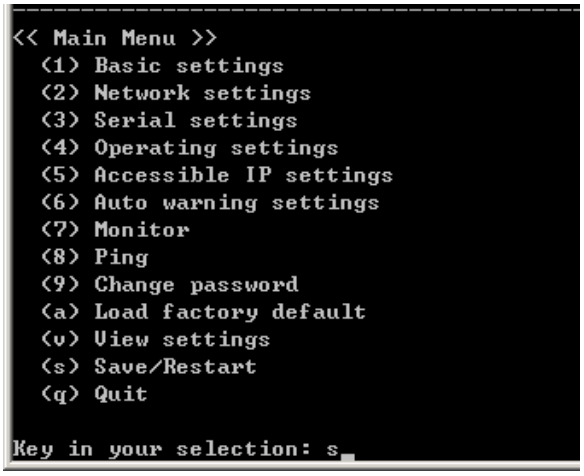
7. Press any key to continue.



8. Type **m** and then press **Enter** to return to the main menu.



9. Type **s** and then press **Enter** to **Save/Restart** the system.



10. Type **y** and then press **Enter** to save the new IP address and restart the 5200-N.

Serial Console (19200, n, 8, 1)

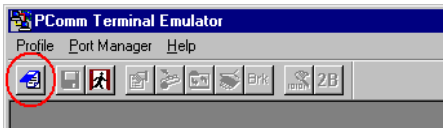
You may use the RS-232 console port to set up the IP address for 5200-N. We suggest using PComm Terminal Emulator, which is available free of charge as part of the PComm Lite program suite (found on the Software CD that comes with the product), to carry out the installation procedure, although other similar utilities may also be used.

ATTENTION

The **Serial Console** can only be accessed by 5200-N's RS-232 ports (ports 1 and 2 for 5210-N, and port 1 for 5230-N). Since 5232-N and 5232I-N do not have an RS-232 interface, the **Serial Console** program cannot be used to configure 5232-N/5232I-N's IP address.

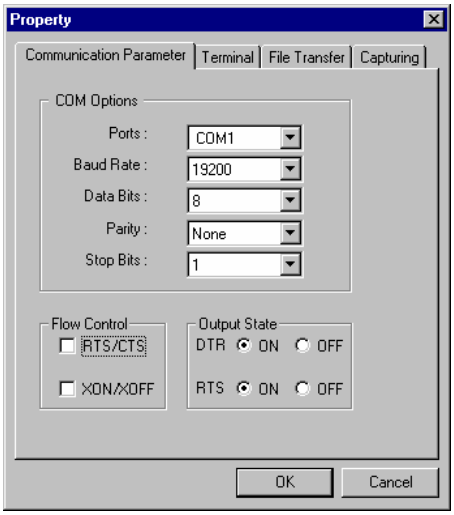
Before you use the serial console to configure the 5200-N, turn off the power and connect the serial cable from 5200-N to your computer's serial port.

1. Connect 5200-N's serial port 1 directly to your computer's male RS-232 serial port.
2. From the Windows desktop, click **Start → Programs → PComm Lite → Terminal Emulator**.
3. When the **PComm Terminal Emulator** window opens, first click the **Port Manager** menu item and select **Open**, or simply click the **Open** icon.

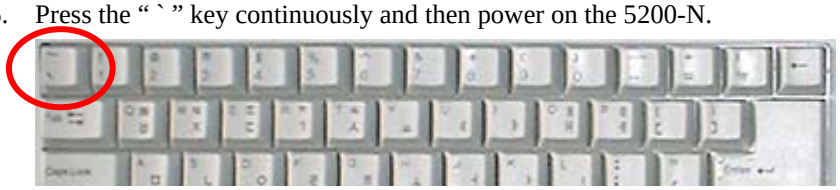


4. The **Property** window opens automatically. From the **Communication Parameter** page, select the appropriate COM port for the connection, **COM1** in this example, and **19200** for **Baudrate**, **8** for **Data Bits**, **None** for **Parity**, and **1** for **Stop Bits**.
5. From the Property window's **Termina**l page, select **ANSI** or **VT100** for **Terminal Type** and then click **OK**.

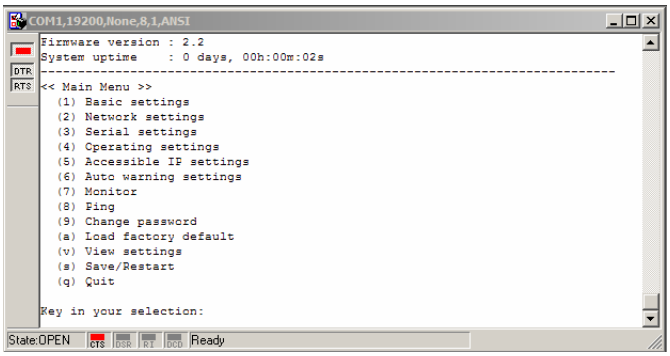
   If you select **Dumb Terminal** as the terminal type, some of the console functions—especially the "Monitor" function—may not work properly.



6. Press the " ` " key continuously and then power on the 5200-N.



7. 5200-N will switch automatically from data mode to console mode as it receives a continuous stream of the " ` "string.
8. Input the password when prompted. Note that this page will only appear when the 5200-N has been set up for password protection.
9. Start configuring the IP address under **Network Settings**. Refer to step 4 in the **Telnet Console** section for the rest of the IP settings.



4

Choosing the Proper Operation Mode

In this chapter, we describe the various 5200-N operation modes. The options include “Driver Mode,” which uses a driver installed on the host computer, and operation modes that rely on TCP/IP socket programming concepts. After reading this chapter, choose the operation mode most suitable for your application, and then refer to Chapter 5 for detailed instructions on how to configure the selected operation mode’s parameters.

The following topics are covered in this chapter:

- **Overview**
- **Real COM Mode**
- **TCP Server Mode**
- **TCP Client Mode**
- **UDP Mode**
- **Pair Connection Mode**
- **Reverse Telnet Mode**
- **Disabled Mode**

Overview

5200-N serial device servers network-enable traditional RS-232/422/485 devices. A serial device server is a tiny computer equipped with a CPU, real-time OS, and TCP/IP protocols that can bi-directionally transform data between the serial and Ethernet formats. By incorporating serial device servers in your application, you will be able to access, manage, and configure remote facilities and equipment over the Internet from anywhere in the world.

Traditional SCADA and data collection systems rely on serial ports (RS-232/422/485) to collect data from various kinds of equipment. Since 5200-N Serial Device Servers network-enable instruments equipped with an RS-232/422/485 communication port, your SCADA and data collection system can access all instruments connected to a standard TCP/IP network, regardless of whether the devices are used locally or at a remote site.

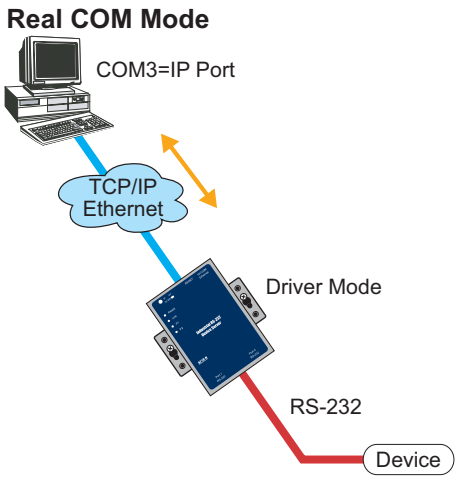
5200-N is an external IP-based network device that allows you to expand the number of serial ports for a host computer on demand. As long as your host computer supports the TCP/IP protocol, you will not be limited by the host computer's bus limitation (such as ISA or PCI), or lack of drivers for various operating systems.

In addition to providing socket access, 5200-N also comes with a Real COM driver that transmits all serial signals intact. You can continue using your existing COM-based software, without needing to invest in additional software.

Three different Socket Modes are available: TCP Server, TCP Client, and UDP Server/Client. The main difference between the TCP and UDP protocols is that TCP guarantees delivery of data by requiring the recipient to send an acknowledgement for every data packet received. UDP does not require this type of verification, making it possible to offer speedier delivery. UDP also allows unicast transmission to an IP, or multicast transmission to groups of IP addresses.

Real COM Mode

5200-N comes equipped with COM drivers that work with Windows 95/98/ME/NT/2000/XP systems. The driver establishes a transparent connection between host and serial device by mapping the IP:Port of the 5200-N's serial port to a local COM port on the host computer. Real COM Mode also supports up to 4 simultaneous connections, so that multiple hosts can collect data from the same serial device at the same time.



ATTENTION

The driver used for Real COM Mode is bundled with Device Server Administrator. The driver is installed on your computer automatically when you install the Device Server Administration Suite.

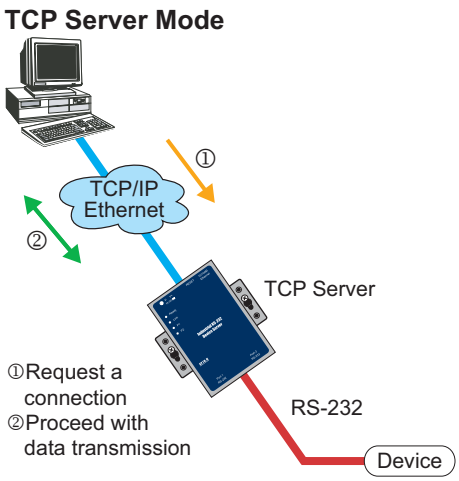
One of the major conveniences of using Real COM Mode is that it allows users to continue using RS-232/422/485 serial communications software that was written for pure serial communications applications. The driver intercepts data sent to the host's COM port, packs it into a TCP/IP packet, and then redirects it through the host's Ethernet card. At the other end of the connection, the 5200-N accepts the Ethernet frame, unpacks the TCP/IP packet, and then sends it transparently to the appropriate serial device attached to one of the 5200-N's serial ports.

ATTENTION

Real COM Mode allows several hosts to have access control to the same 5200-N. The driver that comes with your 5200-N controls host access to attached serial devices by checking the host's IP address. Refer to the **Accessible IP Settings** section of Chapter 5 for more details.

TCP Server Mode

In **TCP Server Mode**, 5200-N is configured with a unique IP:Port combination on a TCP/IP network. In this case, 5200-N waits passively to be contacted by the host computer. After the host computer establishes a connection with the serial device, the 5200-N proceeds with data transmission. TCP Server mode also supports up to 4 simultaneous connections, so that multiple hosts can collect data from the same serial device—at the same time.



As illustrated in the figure, data transmission proceeds as follows:

1. The host requests a connection from the 5200-N configured for TCP Server Mode.
2. Once the connection is established, data can be transmitted in both directions—from the host to the 5200-N, and from the 5200-N to the host.

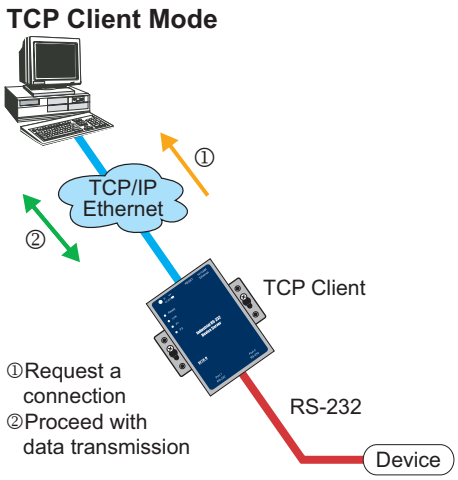
TCP Client Mode

In **TCP Client Mode**, 5200-N can actively establish a TCP connection with a pre-determined host computer when serial data arrives.

After the data has been transferred, 5200-N can disconnect automatically from the host computer by using the **TCP alive check time** or **Inactivity time** settings. Refer to Chapter 5 for detailed configuration instructions.

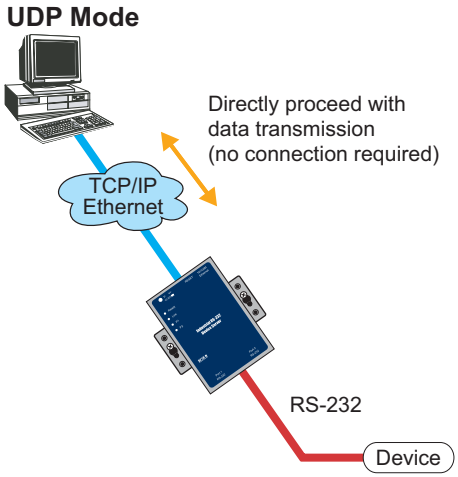
As illustrated in the figure, data transmission proceeds as follows:

1. The 5200-N configured for TCP Client Mode requests a connection from the host.
2. Once the connection is established, data can be transmitted in both directions—from the host to the 5200-N, and from the 5200-N to the host.



UDP Mode

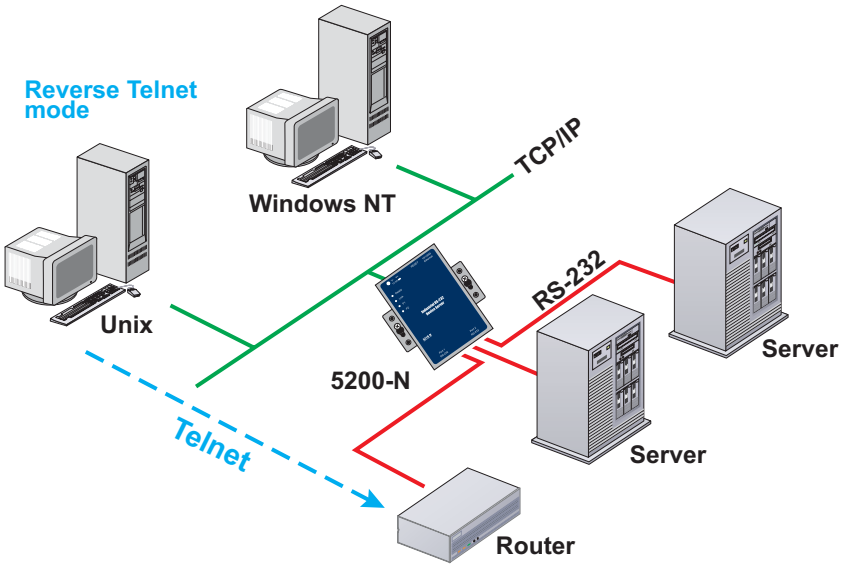
Compared to TCP communication, UDP is faster and more efficient. In UDP mode, you can unicast or multicast data from the serial device to one or multiple host computers; the serial device can also receive data from one or multiple host computers, making this mode ideal for message display applications.



Pair Connection Mode

Pair Connection Mode employs two 5200-Ns in tandem, and can be used to remove the 15-meter distance limitation imposed by the RS-232 interface. One 5200-N is connected from its RS-232 port to the COM port of a PC or another type of computer, such as a hand-held PDA that has a serial port, and the serial device is connected to the RS-232 port of the other 5200-N. The two 5200-Ns are then connected to each other with a cross-over Ethernet cable, both are connected to the same LAN, or in a more advanced setup, they communicate with each other over a WAN (i.e., through one or more routers). Pair Connection Mode transparently transfers both data and modem control signals (although it cannot transmit the DCD signal) between the two 5200-Ns.

Reverse Telnet Mode



Console management is commonly used in Console/AUX or COM port of routers, switches, and UPS. Rtelnet works the same as RAW mode in that they only listen to one specific TCP port after booting up, and wait for the host on the network to initiate the connection. The difference is that the RAW mode does not provide the conversion function of the telnet protocol. If the connected devices need to use the CR/LF conversion function when controlling, then users must select Rtelnet mode.

Disabled Mode

When Operation mode is set to Disabled, that particular port will be disabled. Select the ***Apply the above settings to all serial ports*** option to apply this setting to the other ports.

5

Web Console Configuration

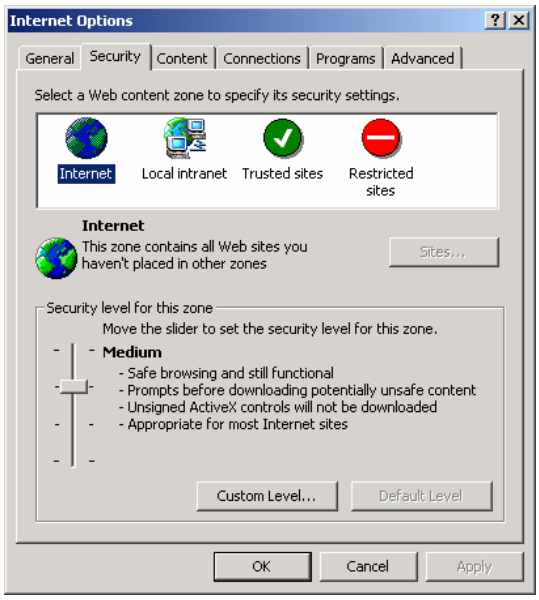
The Web Console is the most user-friendly method available to configure 5200-N. In this chapter, we introduce the Web Console function groups and definitions.

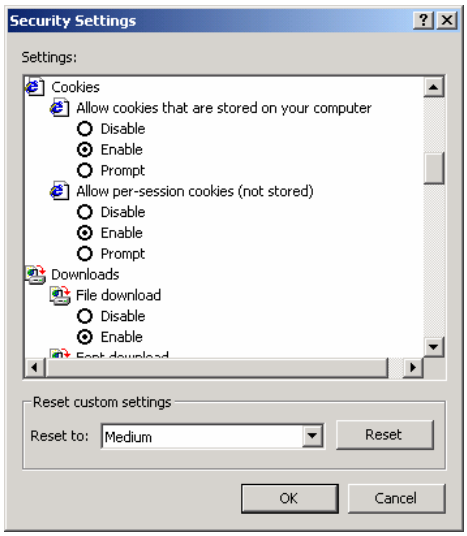
The following topics are covered in this chapter:

- **Opening Your Browser**
- **Basic Settings**
- **Network Settings**
- **Serial Settings**
- **Operating Settings**
  - Real COM Mode
  - TCP Server Mode
  - TCP Client Mode
  - UDP Mode
  - Pair Connection Mode
  - Reverse Telnet Mode
  - Disabled Mode
- **Accessible IP Settings**
- **Auto warning Settings**
  - Auto warning: E-mail and SNMP trap
  - Event Type
- **Monitor**
  - Monitor Line
  - Monitor Async
  - Monitor Async-Settings
- **Change Password**
- **Load Factory Default**

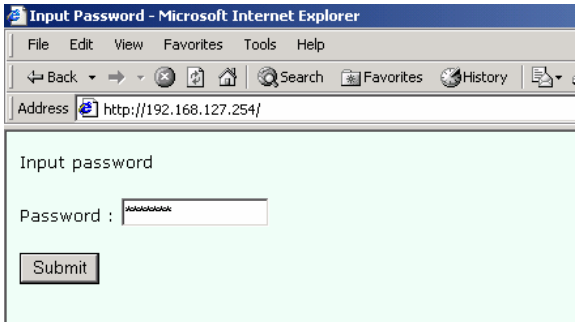
Opening Your Browser

1. Open your browser with the cookie function enabled. (To enable your browser for cookies, right click your desktop Internet Explorer icon, select Properties, click the Security tab, and then select the three Enable options as shown.)





2. Type `192.168.127.254` in the **Address** input box (use the correct IP address if different from the default), and then press **Enter**.
3. Input the password if prompted. The password is transmitted with MD5 encryption over the Ethernet. Note that you will not be prompted to enter the password if the 5200-N is not password protected.



ATTENTION

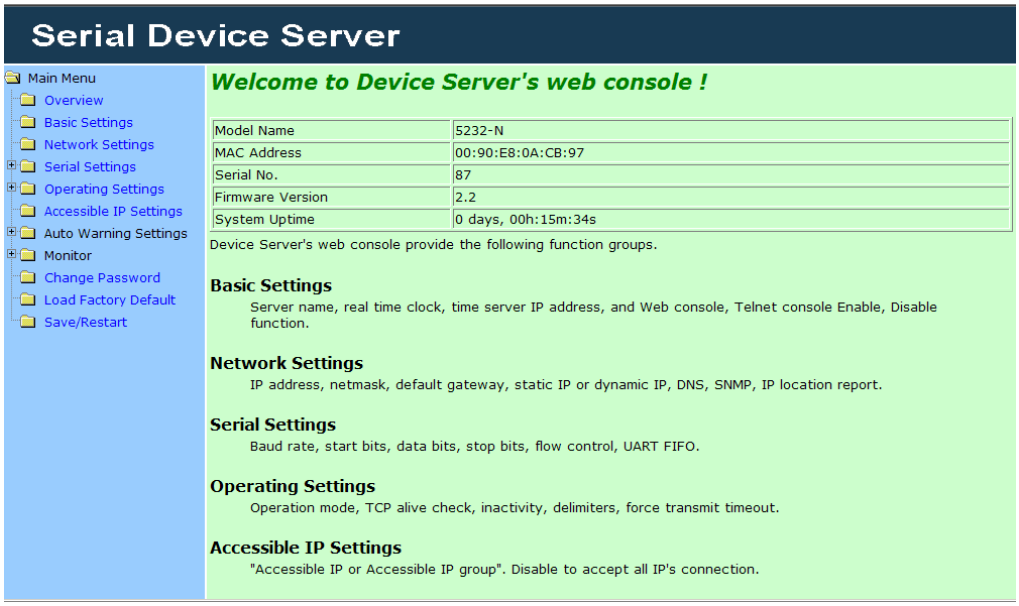
If you use web browsers other than Explorer, remember to Enable the functions to "allow cookies that are stored on your computer" or "allow per-session cookies."

Note that 5200-N only uses cookies for "password" transmission.

ATTENTION

Refer to Chapter 3, **Initial IP Address Configuration**, to see how to configure the IP address. Examples shown in this chapter use the Factory Default IP address (192.168.127.254).

4. The 5200-N homepage will open next. On this page, you can see a brief description of the Web Console's nine function groups.


Serial Device Server
Main Menu
Overview
Basic Settings
Network Settings
Serial Settings
Operating Settings
Accessible IP Settings
Auto Warning Settings
Monitor
Change Password
Load Factory Default
Save/Restart
Welcome to Device Server's web console !
Model Name 5232-N
MAC Address 00:90:E8:0A:CB:97
Serial No. 87
Firmware Version 2.2
System Uptime 0 days, 00h:15m:34s
Device Server's web console provide the following function groups.
Basic Settings
Server name, real time clock, time server IP address, and Web console, Telnet console Enable, Disable function.
Network Settings
IP address, netmask, default gateway, static IP or dynamic IP, DNS, SNMP, IP location report.
Serial Settings
Baud rate, start bits, data bits, stop bits, flow control, UART FIFO.
Operating Settings
Operation mode, TCP alive check, inactivity, delimiters, force transmit timeout.
Accessible IP Settings
"Accessible IP or Accessible IP group". Disable to accept all IP's connection.

ATTENTION

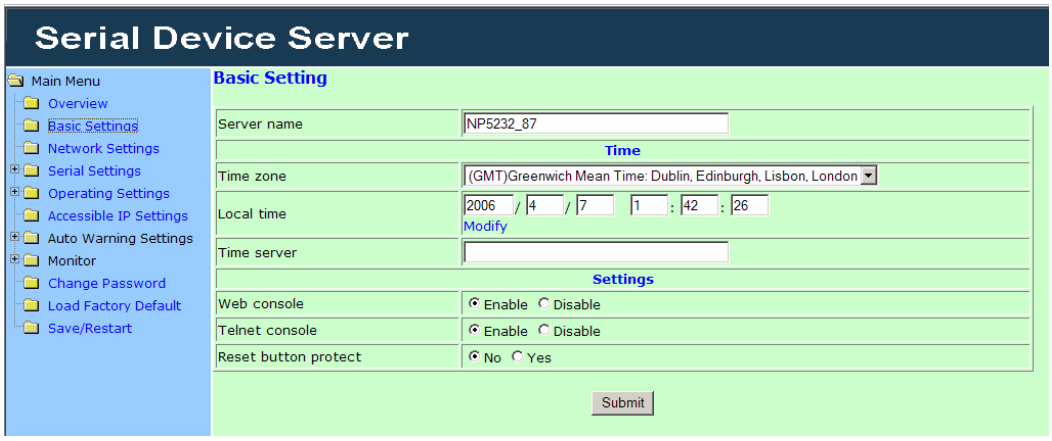
If you can't remember the password, the ONLY way to start configuring 5200-N is to load factory defaults by using the Reset button located near the 5200-N's RJ45 Ethernet port.

Remember to use Device Server Administrator to export the configuration file when you have finished the configuration. After using the Reset button to load factory defaults, your configuration can be easily reloaded into 5200-N by using the Device Server Administrator Import function. Refer to Chapter 6 for more details about using the Export and Import functions.

ATTENTION

If your 5200-N application requires using password protection, you must enable the cookie function in your browser. If the cookie function is disabled, you will not be allowed to enter the Web Console Screen.

Basic Settings



Server name

Setting	Factory Default	Necessity
1 to 39 characters	[model name]_ [Serial No.]	Optional

This option is useful for specifying the location or application of different 5200-Ns.

Time

5200-N has a built-in Real-Time Clock for time calibration functions. Real-time information can be added to Auto warning "Email" or "SNMP Trap" messages.

ATTENTION

First time users should first select the time zone. The Console will display the "real time" according to the time zone compared to GMT.

If you would like to modify the real time clock, select "Local time." 5200-N's firmware will modify the GMT time according to the Time Zone.

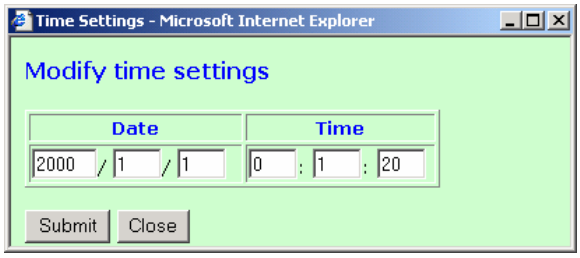
Time zone

Setting	Factory Default	Necessity
User selectable time zone	GMT (Greenwich Mean Time)	Required

Local time

Setting	Factory Default	Necessity
User adjustable time (1900/1/1 to 2037/12/31)	GMT (Greenwich Mean Time)	Required

Click the **Modify** button to open the **Modify time settings** window to modify the time.



Time server

Setting	Factory Default	Necessity
IP Address or Domain Name (E.g., 192.168.1.1, time.stdtime.gov.tw, or time.nist.gov)	*blank*	Optional

5200-N uses SNTP (RFC-1769) for auto time calibration.

Input the correct "Time server" IP address or domain name. Once 5200-N is configured with the correct Time server address, 5200-N will request time information from the "Time server" every 10 minutes.

Web/Telnet Console

The "Disable" option for "Web Console" and "Telnet Console" is included for security reasons. In some cases, you may want to disable one or both of these console utilities as an extra precaution to prevent unauthorized users from accessing your 5200-N. The factory default for both Web console and Telnet console is **Enable**.

Web console

Setting	Factory Default	Necessity
Enable or Disable	Enable	Required

Telnet console

Setting	Factory Default	Necessity
Enable or Disable	Enable	Required

ATTENTION

If you disable both the "Web console" and "Telnet console," you can still use Device Server Administrator to configure 5200-N either locally or remotely over the network. Refer to Chapter 6 for more details.

Reset button protect

Setting	Factory Default	Necessity
No or Yes	No	Required

NOTE: Select **Yes** to allow limited use of the Reset Button. In this case, the Reset Button can be used for only 60 seconds, i.e., 60 sec. after booting up, the Reset Button will be disabled automatically.

Network Settings

You must assign a valid IP address to 5200-N before it will work in your network environment. Your network system administrator should provide you with an IP address and related settings for your network. The IP address must be unique within the network (otherwise, 5200-N will not have a valid connection to the network). Refer to Chapter 3, "Initial IP Address Configuration," for more information.

You can choose from four possible "IP configuration" modes—**Static**, **DHCP**, **DHCP/BOOTP**, and **BOOTP**—located under the web console screen's IP configuration drop-down box.

Method	Function Definition
Static	**User defined** IP address, Netmask, Gateway.
DHCP	DHCP Server assigned IP address, Netmask, Gateway, DNS, and Time Server
DHCP/BOOTP	DHCP Server assigned IP address, Netmask, Gateway, DNS, and Time Server, or BOOTP Server assigned IP address (if the DHCP Server does not respond)
BOOTP	BOOTP Server assigns IP address

IP Address

Setting	Factory Default	Necessity
E.g., 192.168.1.1 (IP addresses of the form *x.x.x*.0 and *x.x.x*.255 are invalid.)	192.168.127.254	Required

An IP address is a number assigned to a network device (such as a computer) as a permanent address on the network. Computers use the IP address to identify and talk to each other over the network. Choose a proper IP address that is unique and valid in your network environment.

Netmask

Setting	Factory Default	Necessity
E.g., 255.255.255.0	255.255.255.0	Required

A netmask identifies a local area network. When a packet is sent out over the network, the 5200-N will use the subnet mask to check whether the destination TCP/IP host specified in the packet is on the local network segment. If the address is on the same network segment as the 5200-N, a connection is established directly from the 5200-N. Otherwise, an attempt is made to establish a connection through the given default gateway.

Gateway

Setting	Factory Default	Necessity
E.g., 192.168.1.1	*blank*	Optional

The gateway IP address identifies a network gateway that acts as an entrance to another network. Usually, the computers that control traffic within the network or at the local Internet service provider are gateway nodes. 5200-N needs to know the IP address of the default gateway computer in order to communicate with hosts outside the local network environment. For correct gateway IP address information, consult your network administrator.

IP configuration

Setting	Factory Default	Necessity
Static, DHCP, DHCP/BOOTP, BOOTP	Static	Required

ATTENTION

In Dynamic IP environments, the firmware will retry 3 times every 30 seconds until network settings are assigned by the DHCP or BOOTP server. The Timeout for each try increases from 1 second, to 3 seconds, to 5 seconds.

If the DHCP/BOOTP Server is unavailable, the firmware will use the default IP address (192.168.127.254), Netmask, and Gateway for IP settings.

DNS server 1 / DNS server 2

Setting	Factory Default	Necessity
E.g., 192.168.1.1 (IP addresses of the form *x.x.x*.0 and *x.x.x*.255 are invalid DNS server settings.)	*blank*	Optional

When the user wants to visit a particular website, the computer requests the website's IP address from a Domain Name System (DNS) server, and then the computer uses that IP address to connect to the web server. DNS is used to identify Internet domain names, and to translate domain names into IP addresses. A domain name is an alphanumeric name, such as cutlets.info. A DNS server is a host that translates this kind of text-based domain name into the numeric IP address used to establish a TCP/IP connection.

In order to use 5200-N's DNS feature, you need to configure the DNS server. Doing so allows 5200-N to use a host's domain name to access the host. 5200-N provides **DNS server 1** and **DNS server 2** configuration items to configure the IP address of the DNS server. DNS Server 2 is used when DNS sever 1 is unavailable.

5200-N plays the role of DNS client, in the sense that the 5200-N will actively query the DNS server for the IP address associated with a particular domain name. 5200-N functions that support domain name are **Time server**, **Destination IP Address in TCP Client mode**, **Mail Server**, **SNMP trap server**, and **Auto report to IP**.

SNMP Settings

Community name

Setting	Factory Default	Necessity
1 to 39 characters (E.g., Support, 886-89191230 #300)	public	Optional

A community name is a plain-text password mechanism that is used to authenticate queries weakly to agents of managed network devices.

Contact

Setting	Factory Default	Necessity
1 to 39 characters (E.g., Support, 886-89191230 #300)	*blank*	Optional

The SNMP contact information usually includes an emergency contact name and telephone or pager number.

Location

Setting	Factory Default	Necessity
1 to 39 characters (E.g., Floor 1, office 2)	*blank*	Optional

Specify the location of SNMP agents, such as 5200-N. This string is usually set to the street address where the 5200-N is physically located.

IP Address Report

When 5200-N Series products are used in a dynamic IP environment, users must spend more time with IP management tasks. For example, if 5200-N is set up as a server (TCP or UDP), then the host, which acts as a client, must know the IP address of the server. If the DHCP server assigns a new IP address to 5200-N, the host must have some way of determining 5200-N's new IP address.

5200-N device servers help out by reporting their IP address periodically to the IP location server, in case the dynamic IP has changed. The following parameters are used to configure the Auto IP report function. There are two ways to receive 5200-N's Auto IP report.

1. Use Device Server Administrator's IP Address Report function.
2. "Auto IP report protocol," which can receive the Auto IP report automatically on a regular basis, is also available to help you develop your own software. Refer to Appendix E for the "Auto IP report protocol."

Auto report to IP

Setting	Factory Default	Necessity
E.g., 192.168.1.1 or URL (IP addresses of the form *x.x.x*.0 and *x.x.x*.255 are invalid.)	*blank*	Optional

Reports generated by the Auto report function will be sent to this IP address automatically.

Auto report to TCP port

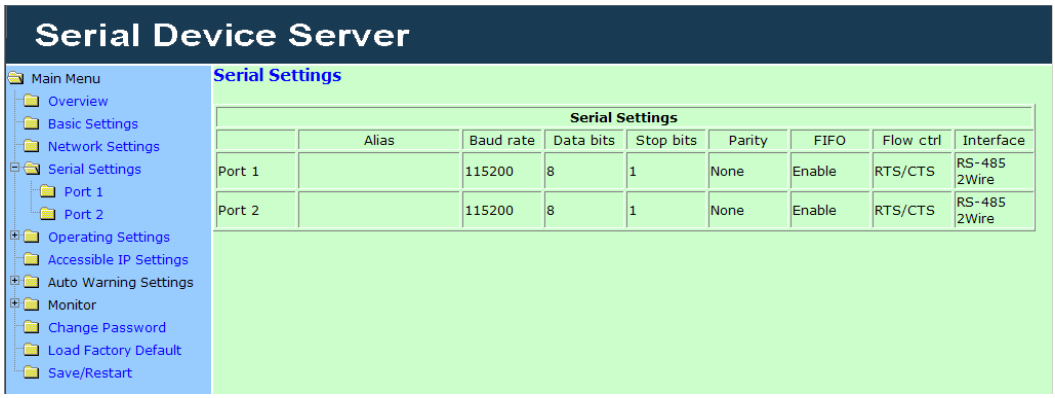
Setting	Factory Default	Necessity
E.g., 4002	4002	Optional

Auto report period

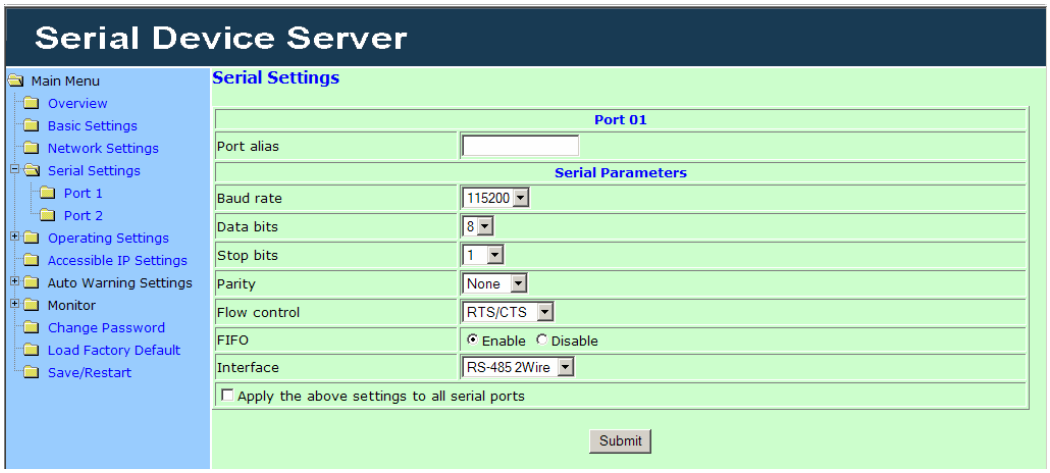
Setting	Factory Default	Necessity
Time interval (in seconds)	10	Optional

Serial Settings

Click **Serial Settings**, located under **Main Menu**, to display serial port settings for ports 1 and 2.



To modify serial settings for a particular port, click either **Port 1** or **Port 2** under **Serial Settings**, located under **Main Menu** on the left side of the browser window.



Port alias

Setting	Factory Default	Necessity
1 to 15 characters (E.g., PLC-No.1)	*blank*	Optional

"Port alias" is included to allow easy identification of the serial devices that are connected to 5200-N's serial port.

Serial Parameters

ATTENTION

Check your serial device's user's manual to determine the proper settings for the device's serial communication parameters. Use these settings to configure 5200-N's serial parameters.

Baudrate

Setting	Factory Default	Necessity
110 bps to 230.4 Kbps	115.2 Kbps	Required

Data bits

Setting	Factory Default	Necessity
5, 6, 7, 8	8	Required

When the user sets Data bits to 5 bits, the Stop bits setting will automatically change to 1.5 bits.

Stop bits

Setting	Factory Default	Necessity
1, 2	1	Required

Stop bits will be set to 1.5 when ***Data bits*** is set to 5 bits.

Parity

Setting	Factory Default	Necessity
None, Even, Odd, Space, Mark	None	Required

Flow control

Setting	Factory Default	Necessity
None, RTS/CTS, DTR/DSR, Xon/Xoff	RTS/CTS	Required

FIFO

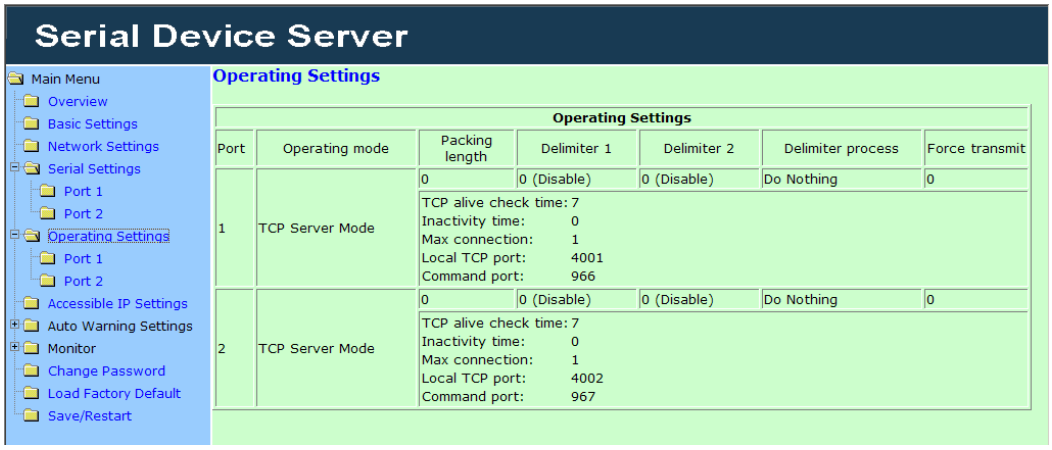
Setting	Factory Default	Necessity
Enable, Disable	Enable	Required

5200-N's serial ports provide a 16-byte FIFO both in the Tx and Rx directions. To prevent data loss during communication, disable the FIFO setting when your serial device does not have a FIFO.

Interface

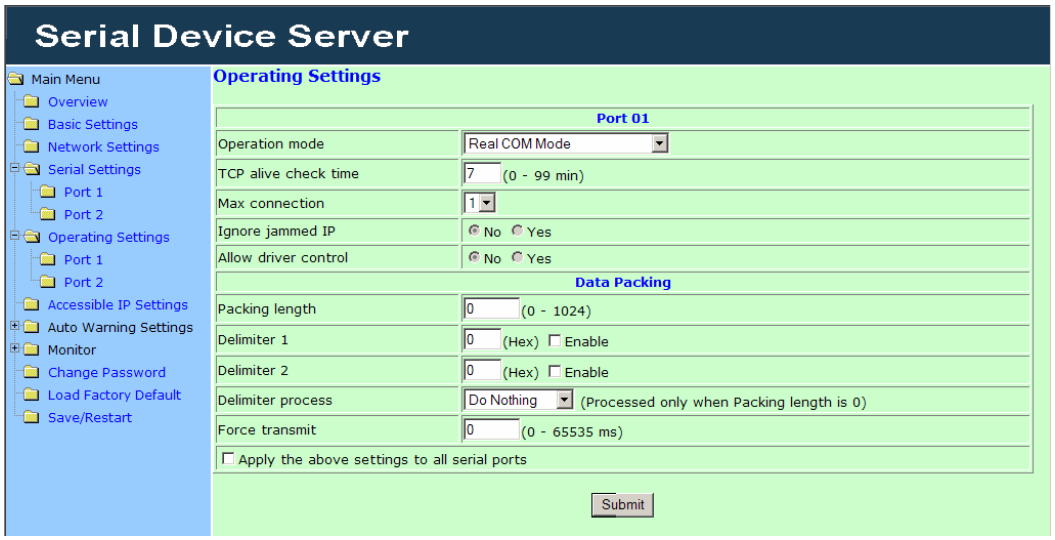
Model	Port	Settings	Factory Default	Necessity
5210-N	1 and 2	RS-232	RS-232	N/A
5230-N	1	RS-232	RS-232	Required
	2	RS-422, 2-wire RS-485, 4-wire RS-485	4-wire RS-485	
5232-N/5232I-N	1 and 2	RS-422, 2-wire RS-485, 4-wire RS-485	4-wire RS-485	Required

Operating Settings



Click **Operating Settings**, located under **Main Menu,** to display the operating settings for both of 5200-N's serial ports.

Real COM Mode



TCP alive check time

Setting	Factory Default	Necessity
0 to 99 min	7 min	Required

0 min: TCP connection is not closed due to an idle TCP connection.

1 to 99 min: 5200-N automatically closes the TCP connection if there is no TCP activity for the given time. After the connection is closed, 5200-N starts listening for another Real COM driver connection from another host.

Max connection

Setting	Factory Default	Necessity
1, 2, 3, 4	1	Required

Max connection is usually used when the user needs to receive data from different hosts simultaneously. The factory default is 1. In this case, only one specific host can access this port of the 5200-N, and the Real COM driver on that host will have full control over the port.

Max. connection 1:
Allows only 1 host's Real COM driver to open the specific 5200-N serial port.

Max connection 2 to 4:
Allows 2 to 4 hosts' Real COM drivers to open the specific 5200-N serial port, at the same time. When multiple hosts' Real COM drivers open the serial port at the same time, the COM driver only provides a pure data tunnel without control ability. That is, this serial port parameter will use the firmware settings, instead of depending on your application program (AP).

Application software that is based on the COM driver will receive a driver response of "success" when the software uses any of the Win32 API functions. The firmware will only send the data back to the driver on the host.

Data will be sent first-in-first-out when data comes into the 5200-N from the Ethernet interface.

ATTENTION

When Max connection is set to 2, 3, or 4, the 5200-N uses a "multi connection application" (i.e., 2, 3, or 4 hosts are allowed access to the port at the same time). When using a multi connection application, 5200-N uses the serial communication parameters set in the console. All the hosts connected to that port must use the same serial settings. If one of the hosts opens the COM port with parameters that are different from 5200-N's console setting, data communication may not work properly.

Ignore jammed IP

Setting	Factory Default	Necessity
No or Yes	No	Required

In previous versions of 5200-N, when Max connections was > 1, and the serial device was transmitting data, if any one of the connected hosts stopped responding, 5200-N would wait until the data had been transmitted successfully before transmitting the second group of data to all hosts. For the current version of 5200-N, if you select Yes for "Ignore jammed IP," the host that is not responding will be ignored, but the data will still be transmitted to the other hosts.

Allow driver control

Setting	Factory Default	Necessity
No or Yes	No	Required

If max connection is greater than 1, 5200-N will ignore driver control commands from all connected hosts. However, if you set "Allow driver control" to YES, control commands will be accepted. Note that since 5200-N may get configuration changes from multiple hosts, the most recent command received will take precedence.

Packing length

Setting	Factory Default	Necessity
0 to 1024	0	Required

Default = 0, The Delimiter Process will be followed, regardless of the length of the data packet. If the data length (in bytes) matches the configured value, the data will be forced out. The data length can be configured from 0 to 1024 bytes. Set to 0 if you do not need to limit the length.

Delimiter 1

Setting	Factory Default	Necessity
00 to FF (hex)	0	Required

Delimiter 2

Setting	Factory Default	Necessity
00 to FF (hex)	0	Required

Once the 5200-N receives both delimiters through its serial port, it immediately packs all data currently in its buffer and sends it to the 5200-N's Ethernet port.

ATTENTION

Delimiter 2 is optional. If left blank, then Delimiter 1 alone trips clearing of the buffer. If the size of the serial data received is greater than 1 KB, the 5200-N will automatically pack the data and send it to the Ethernet. However, to use the delimiter function, you must at least enable Delimiter 1. If Delimiter 1 is left blank and Delimiter 2 is enabled, the delimiter function will not work properly.

Delimiter process

Setting	Factory Default	Necessity
Do nothing, Delimiter + 1, Delimiter + 2, Strip Delimiter	Do Nothing	Required

When [Delimiter + 1] or [Delimiter + 2] is selected, the data will be transmitted when an additional byte (for Delimiter +1), or an additional 2 bytes (for Delimiter +2) of data is received after receiving the Delimiter.

When [Strip Delimiter] is selected, when the Delimiter is received, the Delimiter is deleted (i.e., stripped), and the remaining data is transmitted.

When [Do nothing] is selected, the data will be transmitted when the Delimiter is received.

Force transmit

Setting	Factory Default	Necessity
0 to 65535 ms	0 ms	Required

0: Disable the force transmit timeout.

1 to 65535: Forces the 5200-N's TCP/IP protocol software to try to pack serial data received during the specified time into the same data frame.

This parameter defines the time interval during which 5200-N fetches the serial data from its internal buffer. If data is incoming through the serial port, 5200-N stores the data in the internal buffer. 5200-N transmits data stored in the buffer via TCP/IP, but only if the internal buffer is full or if the Force transmit time interval reaches the time specified under Force transmit timeout.

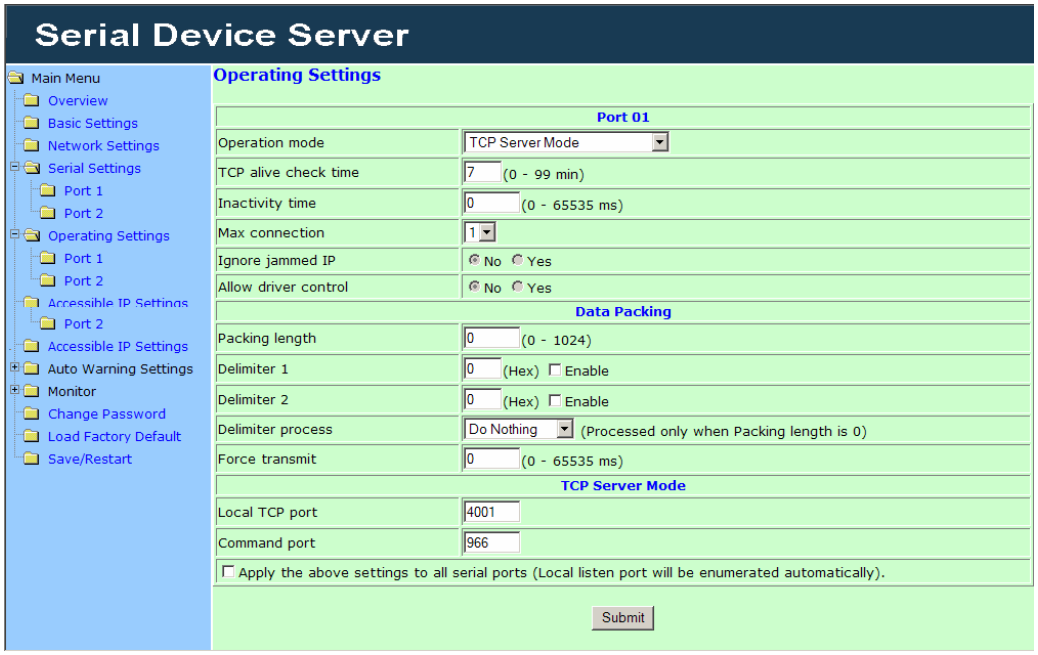
The optimal Force transmit timeout depends on your application, but it must be at least larger than one character interval within the specified baudrate. For example, assume that the serial port is set to 1200 bps, 8 data bits, 1 stop bit, and no parity. In this case, the total number of bits needed to send a character is 10 bits, and the time required to transfer one character is

(10 (bits) / 1200 (bits/s)) * 1000 (ms/s) = 8.3 ms.

Therefore, you should set Force transmit timeout to be larger than 8.3 ms, so in this case, it must be greater than or equal to 10 ms.

If the user wants to send a series of characters in the same packet, the serial device attached to 5200-N should send that series of characters during a time interval less than the Force transmit timeout for 5200-N, and the total length of data must be less than or equal to 5200-N's internal buffer size. The serial communication buffer size for 5200-N is 1 KB per port.

TCP Server Mode



TCP alive check time

Setting	Factory Default	Necessity
0 to 99 min	7 min	Optional

0 min: TCP connection is not closed due to an idle TCP connection.

1 to 99 min: 5200-N automatically closes the TCP connection if there is no TCP activity for the given time. After the connection is closed, 5200-N starts listening for another host's TCP connection.

Inactivity time

Setting	Factory Default	Necessity
0 to 65535 ms	0 ms	Optional

0 ms: TCP connection is not closed due to an idle serial line.

1-65535 ms: 5200-N automatically closes the TCP connection if there is no serial data activity for the given time. After the connection is closed, 5200-N starts listening for another host's TCP connection.

This parameter defines the maintenance status as Closed or Listen for the TCP connection. The connection is closed if data is not incoming or outgoing through the serial port during the specific Inactivity time.

If the Inactivity time is set to 0, the current TCP connection is kept active until a connection close request is received. Although Inactivity time is disabled, the 5200-N will check the connection status between the 5200-N and remote host by sending "keep alive" packets periodically. If the remote host does not respond to the packet, 5200-N assumes that the connection was closed down unintentionally. 5200-N will then force the existing TCP connection to close.

ATTENTION

The Inactivity time should at least be larger than Force transmit timeout. To prevent the unintended loss of data due to the session being disconnected, it is highly recommended that this value is set large enough so that the intended data transfer can be completed.

Max connection

Setting	Factory Default	Necessity
1, 2, 3, 4	1	Required

Max connection is usually used when the user needs to receive data from different hosts simultaneously. The factory default only allows 1 connection at a time.

Max. Connection 1:
5200-N only allows 1 host to open the TCP connection to the specific serial port.

Max Connection 2 to 4:
Allows 2 to 4 hosts' TCP connection requests to open this 5200-N serial port, at the same time. When multiple hosts establish a TCP connection to the specific serial port at the same time, 5200-N will duplicate the serial data and transmit it to all the hosts. Ethernet data is sent on a first-in-first-out basis to the serial port when data comes into 5200-N from the Ethernet interface.

Ignore jammed IP

Setting	Factory Default	Necessity
No or Yes	No	Required

In previous versions of 5200-N, when Max connections was > 1, and the serial device was transmitting data, if any one of the connected hosts stopped responding, 5200-N would wait until the data had been transmitted successfully before transmitting the second group of data to all hosts. For the current version of 5200-N, if you select Yes for "Ignore jammed IP," the host that is not responding will be ignored, but the data will still be transmitted to the other hosts.

Allow driver control

Setting	Factory Default	Necessity
No or Yes	No	Required

If "max connection" is greater than 1, 5200-N will ignore driver control commands from all connected hosts. However, if you set "Allow driver control" to YES, control commands will be accepted. Note that since 5200-N may get configuration changes from multiple hosts, the most recent command received will take precedence.

Packing length

Setting	Factory Default	Necessity
0 to 1024	0	Optional

Default = 0, The Delimiter Process will be followed, regardless of the length of the data packet. If the data length (in bytes) matches the configured value, the data will be forced out. The data length can be configured from 0 to 1024 bytes. Set to 0 if you do not need to limit the length.

Delimiter 1

Setting	Factory Default	Necessity
00 to FF	*blank*	Optional

Delimiter 2

Setting	Factory Default	Necessity
00 to FF	*blank*	Optional

Once the 5200-N receives both delimiters through its serial port, it immediately packs all data currently in its buffer and sends it through the 5200-N's Ethernet port.

ATTENTION

Delimiter 2 is optional. If left blank, then Delimiter 1 alone trips clearing of the buffer. If the size of the serial data received is greater than 1 KB, the 5200-N will automatically pack the data and send it to the Ethernet. However, to use the delimiter function, you must at least enable Delimiter 1. If Delimiter 1 is left blank and Delimiter 2 is enabled, the delimiter function will not work properly.

Delimiter process

Setting	Factory Default	Necessity
Do nothing Delimiter + 1 Delimiter + 2 Strip Delimiter	Do Nothing	Optional

When [Delimiter + 1] or [Delimiter + 2] is selected, the data will be transmitted when an additional byte (for Delimiter +1), or an additional 2 bytes (for Delimiter +2) of data is received after receiving the Delimiter.

When [Strip Delimiter] is selected, when the Delimiter is received, the Delimiter is deleted (i.e., stripped), and the remaining data is transmitted.

When [Do nothing] is selected, the data will be transmitted when the Delimiter is received.

Force transmit

Setting	Factory Default	Necessity
0 to 65535 ms	0 ms	Optional

0: Disable the force transmit timeout.

1 to 65535: Forces the 5200-N's TCP/IP protocol software to try to pack serial data received during the specified time into the same data frame.

This parameter defines the time interval during which 5200-N fetches the serial data from its internal buffer. If data is incoming through the serial port, 5200-N stores the data in the internal buffer. 5200-N transmits data stored in the buffer via TCP/IP, but only if the internal buffer is full or if the Force transmit time interval reaches the time specified under Force transmit timeout.

The optimal Force transmit timeout depends on your application, but it must be at least larger than one character interval within the specified baud rate. For example, assume that the serial port is set to 1200 bps, 8 data bits, 1 stop bit, and no for parity. In this case, the total number of bits needed to send a character is 10 bits, and the time required to transfer one character is

(10 (bits) / 1200 (bits/s)) * 1000 (ms/s) = 8.3 ms.

Therefore, you should set Force transmit timeout to be larger than 8.3 ms, so in this case, it must be greater than or equal to 10 ms.

If the user wants to send a series of characters in the same packet, the serial device attached to 5200-N should send that series of characters during a time interval less than the Force transmit timeout for 5200-N, and the total length of data must be less than or equal to 5200-N's internal buffer size. The serial communication buffer size for 5200-N is 1 KB per port.

Local TCP port

Setting	Factory Default	Necessity
1 to 65535	4001	Required

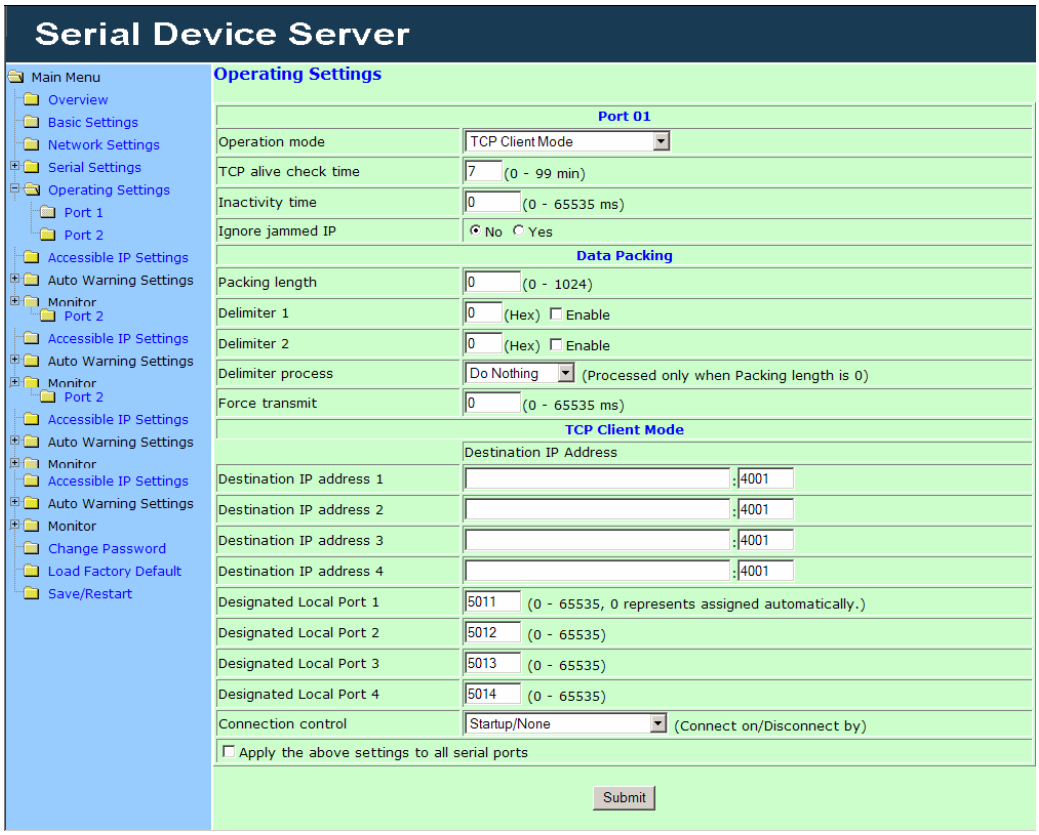
The "Local TCP port" is the TCP port that 5200-N uses to listen to connections, and that other devices must use to contact 5200-N. To avoid conflicts with commonly used TCP port numbers, the default is set to 4001.

Command port

Setting	Factory Default	Necessity
1 to 65535	966	Optional

The "Command port" is a TCP port that listens for IP-Serial Lib commands from the host. In order to prevent a TCP port conflict with other applications, the user can set the Command port to another port if needed. IP-Serial Lib will automatically check the Command Port on 5200-N so that the user does not need to configure the program.

TCP Client Mode



TCP alive check time

Setting	Factory Default	Necessity
0 to 99 min	7 min	Optional

0 min: TCP connection is not closed due to an idle TCP connection.

1 to 99 min: 5200-N closes the TCP connection automatically if there is no TCP activity for the given time.

Inactivity time

Setting	Factory Default	Necessity
0 to 65535 ms	0 ms	Optional

0 ms: TCP connection is not closed due to an idle serial line.

0-65535 ms: 5200-N closes the TCP connection automatically if there is no serial data activity for the given time.

This parameter defines the maintenance status as Closed or Listen for the TCP connection. The connection is closed if data is not incoming or outgoing through the serial port during the specified Inactivity time.

If the Inactivity time is set to 0, the current TCP connection is kept active until a connection close request is received. Although Inactivity time is disabled, the 5200-N will check the connection status between the 5200-N and remote host by sending "keep alive" packets periodically. If the remote host does not respond to the packet, 5200-N assumes that the connection was closed down unintentionally. 5200-N will then force the existing TCP connection to close.

ATTENTION

The Inactivity time should at least be set larger than that of Force transmit timeout. To prevent the unintended loss of data due to the session being disconnected, it is highly recommended that this value is set large enough so that the intended data transfer is completed.

ATTENTION

Inactivity time is ONLY active when "TCP connect on" is set to "Any character."

Ignore jammed IP

Setting	Factory Default	Necessity
No or Yes	No	Optional

In previous versions of 5200-N, when Max connections was > 1, and the serial device was transmitting data, if any one of the connected hosts stopped responding, 5200-N would wait until the data had been transmitted successfully before transmitting the second group of data to all hosts. For the current version of 5200-N, if you select Yes for "Ignore jammed IP," the host that is not responding will be ignored, but the data will still be transmitted to the other hosts.

Packing length

Setting	Factory Default	Necessity
0 to 1024	0	Optional

Default = 0, The Delimiter Process will be followed, regardless of the length of the data packet. If the data length (in bytes) matches the configured value, the data will be forced out. The data length can be configured for 0 to 1024 bytes. Set to 0 if you do not need to limit the length.

Delimiter 1

Setting	Factory Default	Necessity
00 to FF (hex)	*blank*	Optional

Delimiter 2

Setting	Factory Default	Necessity
00 to FF (hex)	*blank*	Optional

Once the 5200-N receives both delimiters through its serial port, it immediately packs all data currently in its buffer and sends it to the 5200-N's Ethernet port.

ATTENTION

Delimiter 2 is optional. If left blank, then Delimiter 1 alone trips clearing of the buffer. If the size of the serial data received is greater than 1 KB, the 5200-N will automatically pack the data and send it to the Ethernet. However, to use the delimiter function, you must at least enable Delimiter 1. If Delimiter 1 is left blank and Delimiter 2 is enabled, the delimiter function will not work properly.

Delimiter process

Setting	Factory Default	Necessity
Do nothing, Delimiter + 1, Delimiter + 2, Strip Delimiter	Do Nothing	Required

When [Delimiter + 1] or [Delimiter + 2] is selected, the data will be transmitted when an additional byte (for Delimiter +1), or an additional 2 bytes (for Delimiter +2) of data is received after receiving the Delimiter.

When [Strip Delimiter] is selected, when the Delimiter is received, the Delimiter is deleted (i.e., stripped), and the remaining data is transmitted.

When [Do nothing] is selected, the data will be transmitted when the Delimiter is received.

Force transmit

Setting	Factory Default	Necessity
0 to 65535 ms	0 ms	Required

0: Disable force transmit timeout.

1 to 65535: Forces the 5200-N's TCP/IP protocol software to try to pack serial data received during the specified time into the same data frame.

This parameter defines the time interval during which 5200-N fetches the serial data from its internal buffer. If data is incoming through the serial port, 5200-N stores the data in the internal buffer. 5200-N transmits data stored in the buffer via TCP/IP, but only if the internal buffer is full or if the Force transmit time interval reaches the time specified under Force transmit timeout.

The optimal Force transmit timeout depends on your application, but it must be at least larger than one character interval within the specified baud rate. For example, assume that the serial port is set to 1200 bps, 8 data bits, 1 stop bit, and no parity. In this case, the total number of bits needed to send a character is 10 bits, and the time required to transfer one character is

(10 (bits) / 1200 (bits/s)) * 1000 (ms/s) = 8.3 ms.

Therefore, you should set Force transmit timeout to be larger than 8.3 ms, so in this case, it must be greater than or equal to 10 ms.

If the user wants to send a series of characters in the same packet, the serial device attached to 5200-N should send that series of characters during a time interval less than the Force transmit timeout for 5200-N, and the total length of data must be less than or equal to 5200-N's internal buffer size. The serial communication buffer size for 5200-N is 1 KB per port.

Destination IP address 1

Setting	Factory Default	Necessity
IP address or Domain Name (E.g., 192.168.1.1)	*blank*	Optional

Allows 5200-N to connect actively to the remote host whose IP address is set by this parameter.

Destination IP address 2/3/4

Setting	Factory Default	Necessity
IP address or Domain Name (E.g., 192.168.1.1)	*blank*	Optional

Allows 5200-N to connect actively to the remote host whose IP address is set by this parameter.

ATTENTION

Up to 4 connections can be established between 5200-N and hosts. The connection speed or throughput may be low if one of the four connections is slow, since the 1 slow connection will slow down the other 3 connections.

ATTENTION

The "Destination IP address" parameter can use both IP address and Domain Name. For some applications, the user may need to send the data actively to the remote destination domain name.

Designated Local Port 1/2/3/4

Setting	Factory Default	Necessity
TCP Port No.	5011 *(Port 1)* 5012 *(Port 2)* 5013 *(Port 3)* 5014 *(Port 4)*	Required

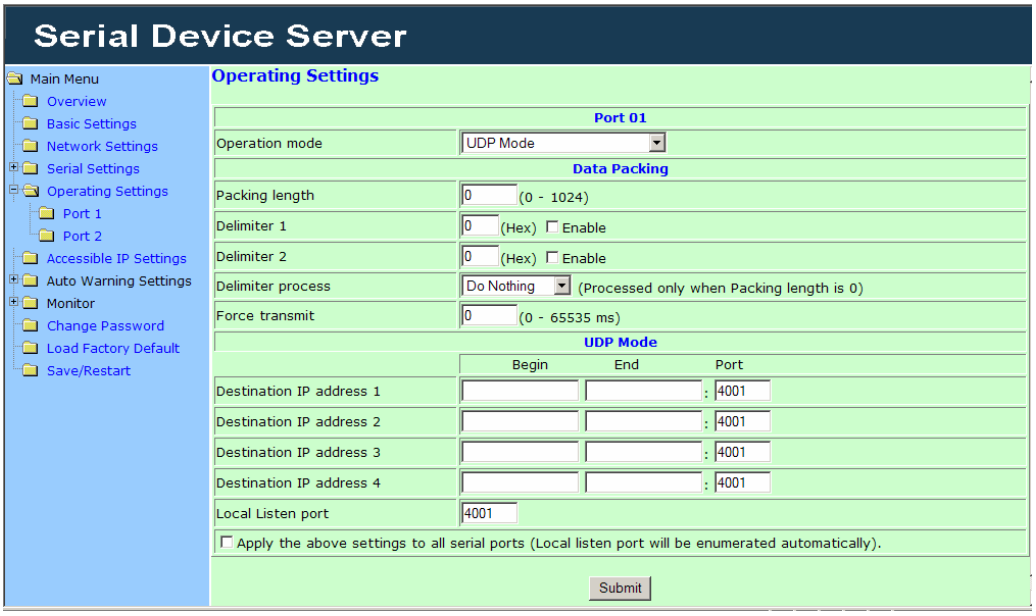
Connection control

Setting	Factory Default	Necessity
Startup/None, Any Character/None, Any Character/Inactivity Time, DSR ON/DSR OFF, DSR ON/None, DCD ON/DCD OFF, DCD ON/None	Startup/None	Required

The meaning of each of the above settings is given in the table below. In general, both the Connect condition and Disconnect condition are given.

Connect/Disconnect	Description
Startup/None (default)	A TCP connection will be established on startup, and will remain active indefinitely.
Any Character/None	A TCP connection will be established when any character is received from the serial interface, and will remain active indefinitely.
Any Character/ Inactivity Time	A TCP connection will be established when any character is received from the serial interface, and will be disconnected when the Inactivity time out is reached.
DSR On/DSR Off	A TCP connection will be established when a DSR "On" signal is received, and will be disconnected when a DSR "Off" signal is received.
DSR On/None	A TCP connection will be established when a DSR "On" signal is received, and will remain active indefinitely.
DCD On/DCD Off	A TCP connection will be established when a DCD "On" signal is received, and will be disconnected when a DCD "Off" signal is received.
DCD On/None	A TCP connection will be established when a DCD "On" signal is received, and will remain active indefinitely.

UDP Mode



Packing length

Setting	Factory Default	Necessity
0 to 1024	0	Required

Default = 0, The Delimiter Process will be followed, regardless of the length of the data packet. If the data length (in bytes) matches the configured value, the data will be forced out. The data length can be configured from 0 to 1024 bytes. Set to 0 if you do not need to limit the length.

Delimiter 1

Setting	Factory Default	Necessity
00 to FF	*blank*	Required

Delimiter 2

Setting	Factory Default	Necessity
00 to FF	*blank*	Required

Once the 5200-N receives both delimiters through its serial port, it immediately packs all data currently in its buffer and sends it out through the 5200-N's Ethernet port.

ATTENTION

Delimiter 2 is optional. If left blank, then Delimiter 1 alone trips clearing of the buffer. If the size of the serial data received is greater than 1 KB, the 5200-N will automatically pack the data and send it to the Ethernet. However, to use the delimiter function, you must at least enable Delimiter 1. If Delimiter 1 is left blank and Delimiter 2 is enabled, the delimiter function will not work properly.

Delimiter process

Setting	Factory Default	Necessity
Do nothing Delimiter + 1 Delimiter + 2 Strip Delimiter	Do Nothing	Optional

[Delimiter + 1] or [Delimiter + 2]: The data will be transmitted when an additional byte (for Delimiter +1), or an additional 2 bytes (for Delimiter +2) of data is received after receiving the Delimiter.

[Strip Delimiter]: When the Delimiter is received, the Delimiter is deleted (i.e., stripped), and the remaining data is transmitted.

[Do nothing]: The data will be transmitted when the Delimiter is received.

Force transmit

Setting	Factory Default	Necessity
0 to 65535 ms	0 ms	Required

0: Disable the force transmit timeout.

1 to 65535: Forces the 5200-N's TCP/IP protocol software to try to pack serial data received during the specified time into the same data frame.

This parameter defines the time interval during which 5200-N fetches the serial data from its internal buffer. If data is incoming through the serial port, 5200-N stores the data in the internal buffer. 5200-N transmits data stored in the buffer via TCP/IP, but only if the internal buffer is full or if the Force transmit time interval reaches the time specified under Force transmit timeout.

The optimal Force transmit timeout depends on your application, but it must be at least larger than one character interval within the specified baudrate. For example, assume that the serial port is set to 1200 bps, 8 data bits, 1 stop bit, and no parity. In this case, the total number of bits needed to send a character is 10 bits, and the time required to transfer one character is

(10 (bits) / 1200 (bits/s)) * 1000 (ms/s) = 8.3 ms.

Therefore, you should set Force transmit timeout to be larger than 8.3 ms, so in this case, it must be greater than or equal to 10 ms.

If the user wants to send a series of characters in the same packet, the serial device attached to 5200-N should send that series of characters during a time interval less than the Force transmit timeout for 5200-N, and the total length of data must be less than or equal to 5200-N's internal buffer size. The serial communication buffer size for 5200-N is 1 KB per port.

Destination IP address 1

Setting	Factory Default	Necessity
IP address range E.g., Begin: 192.168.1.1 End: 192.168.1.10	Begin: *blank*	Optional
	End: *blank*	
	Port: 4001	Required

Destination IP address 2/3/4

Setting	Factory Default	Necessity
IP address range E.g., Begin: 192.168.1.11 End: 192.168.1.20	Begin: *blank*	Optional
	End: *blank*	
	Port: 4001	Required

Local listen port

Setting	Factory Default	Necessity
1 to 65535	4001	Required

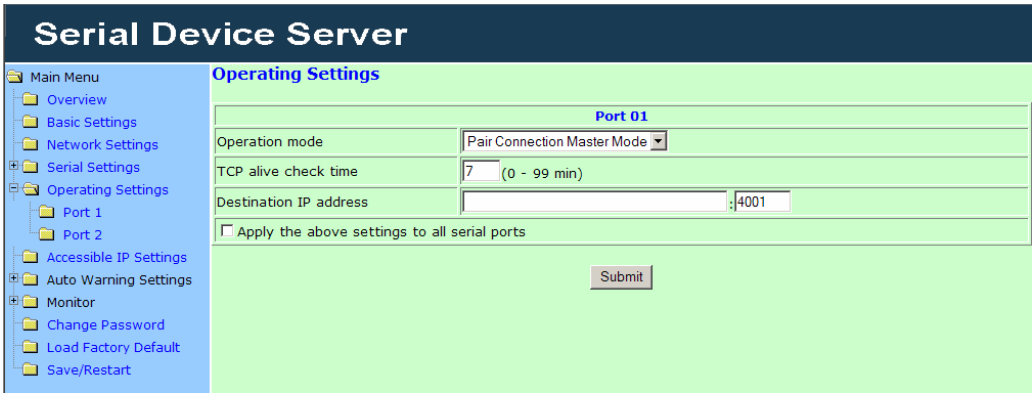
The UDP port that 5200-N listens to, and that other devices must use to contact 5200-N. To avoid conflicts with common UDP ports, the default is set to 4001.

Pair Connection Mode

Pair Connection Mode employs two 5200-N device servers in tandem, and can be used to remove the 15-meter distance limitation imposed by the RS-232 interface. One 5200-N is connected from its RS-232 port to the COM port of a PC or other type of computer, such as hand-held PDAs that have a serial port, and the serial device is connected to the RS-232 port of the other 5200-N. The two 5200-N device servers are then connected to each other with a cross-over Ethernet cable, both are connected to the same LAN, or in a more advanced setup, they communicate with each other over a WAN (i.e., through one or more routers). Pair Connection Mode transparently transfers both data and modem control signals (although it cannot transmit the DCD signal) between the two 5200-Ns.

Pair Connection Master Mode

When using Pair Connection Mode, you must select **Pair Connection Master Mode** for the Operation mode of one of the 5200-N device servers. In effect, this 5200-N will be acting as a TCP client.



TCP alive check time

Setting	Factory Default	Necessity
0 to 99 min	7 min	Required

0 min: TCP connection is not closed due to an idle TCP connection.

1 to 99 min: 5200-N closes the TCP connection automatically if there is no TCP activity for the given time.

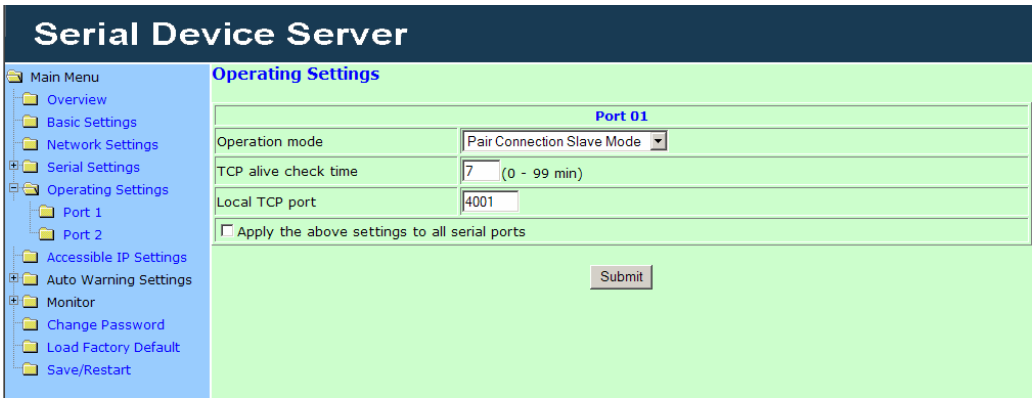
Destination IP address

Setting	Factory Default	Necessity
IP address or Domain Name (E.g., 192.168.1.1)	*blank*	Optional
TCP port No.	4001	Required

The Pair Connection "Master" will contact the network host that has this IP address. Data will be transmitted through the port No. (4001 by default). Note that you must configure the same TCP port No. for the device server acting as the Pair Connection "Slave."

Pair Connection Slave Mode

When using Pair Connection Mode, you must select **Pair Connection Slave Mode** for the Operation mode of one of the 5200-N device servers. In effect, this 5200-N will be acting as a TCP server.



TCP alive check time

Setting	Factory Default	Necessity
0 to 99 min	7 min	Required

0 min: TCP connection is not closed due to an idle TCP connection.

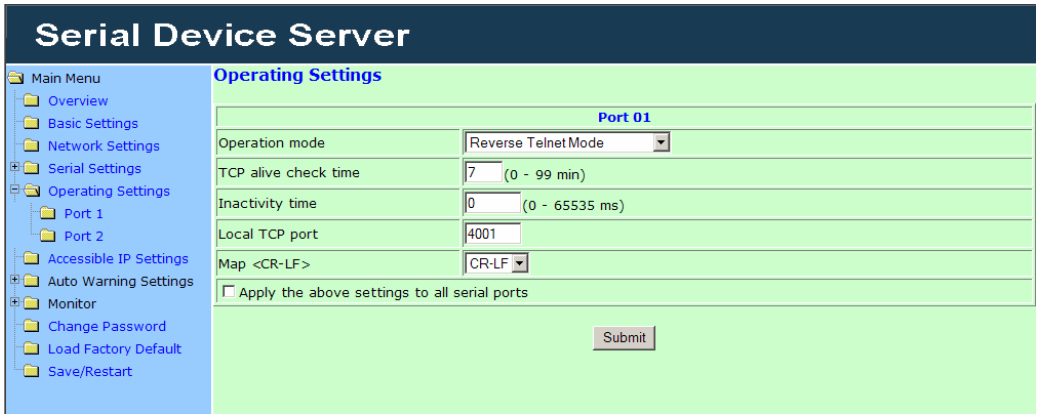
1 to 99 min: 5200-N closes the TCP connection automatically if there is no TCP activity for the given time.

Local TCP port

Setting	Factory Default	Necessity
TCP port No. (e.g., 4001)	4001	Required

This Port No. must be the same port No. that you set up for the Pair Connection "Master" device server.

Reverse Telnet Mode



TCP alive check time

Setting	Factory Default	Necessity
0 to 99 min	7	Required

0 min: TCP connection is not closed due to an idle TCP connection.

1 to 99 min: 5200-N closes the TCP connection automatically if there is no TCP activity for the given time.

Inactivity time

Setting	Factory Default	Necessity
0 to 65535 ms	0	Required

Idle time setting for auto-disconnection. 0 min. means it will never disconnect.

Local TCP port

Setting	Factory Default	Necessity
1 to 65535	4001	Required

Each of 5200-N's serial ports is mapped to a TCP port. To avoid conflicts with common TCP port numbers, set port numbers to 4001 for port 1, 4002 for port 2, etc.

Map <CR-LF>

Setting	Factory Default	Necessity
CR, LF, CR-LF	CR-LF	Required

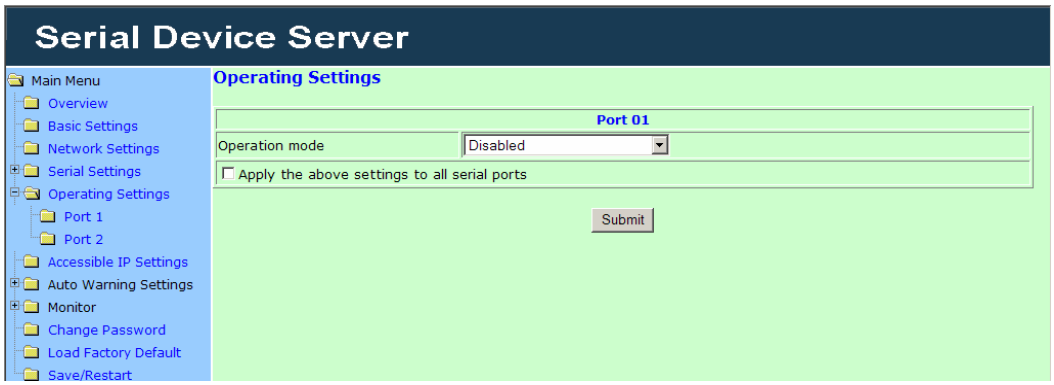
If data received through 5200-N's Ethernet port is sent using the "enter" command, the data will be transmitted out through the serial port with an added

(1) "carriage return + line feed" if you select the <CR-LF> option
(i.e., the cursor will jump to the next line, and return to the first character of the line)

(2) "carriage return" if you select the <CR> option
(i.e., the cursor will return to the first character of the line)

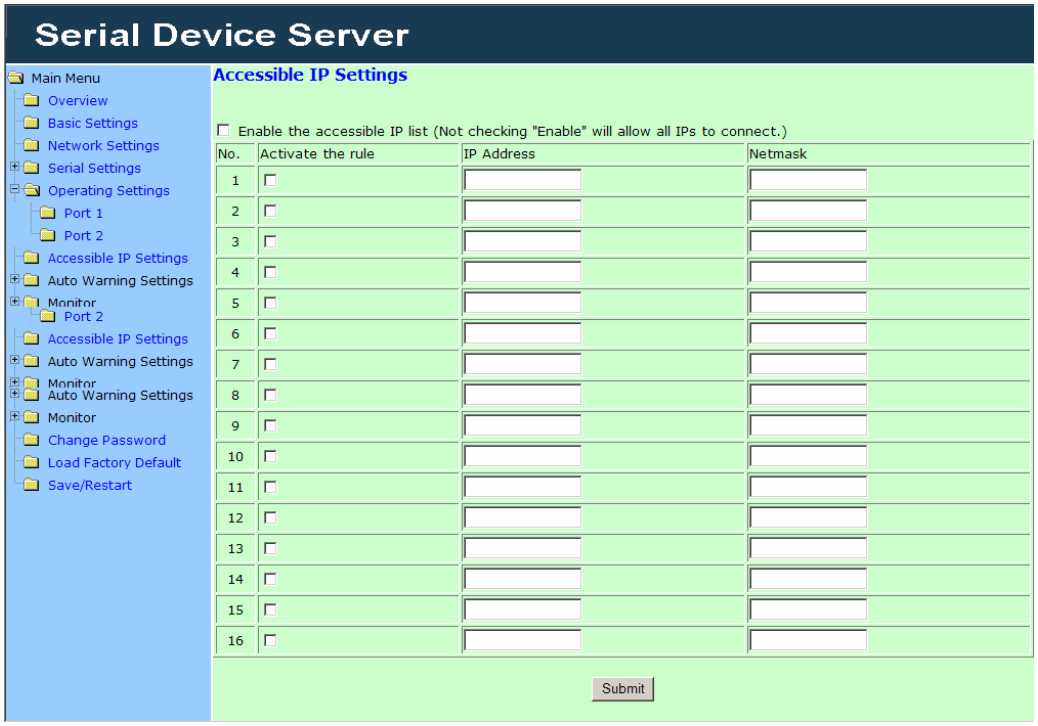
(3) "line feed" if you select the <LF> option.
(i.e., the cursor will jump to the next line, but not move horizontally)

Disabled Mode



When Operation mode is set to Disabled, that particular port will be disabled. Select the ***Apply the above settings to all serial ports*** option to apply this setting to the other ports.

Accessible IP Settings



5200-N uses an IP address based filtering method to control access to itself.

Accessible IP Settings allows you to add or block remote host IP addresses to prevent unauthorized access. Access to 5200-N is controlled by IP address. That is, if a host's IP address is in the accessible IP table, then the host will be allowed to access the 5200-N. You can use one of the following types of access.

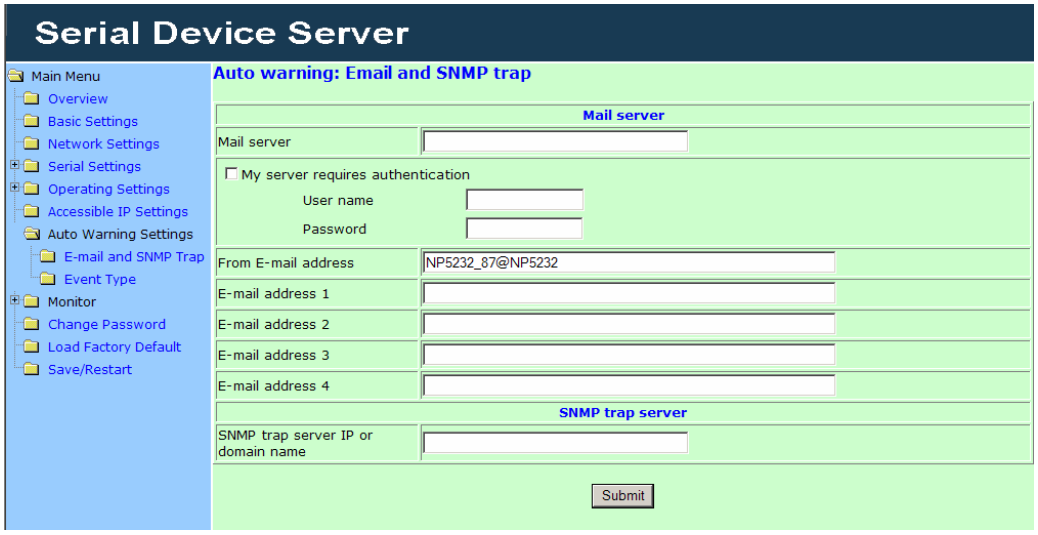
- **Only one host with a specified IP address can access the 5200-N**
  Use Netmask = 255.255.255.255 for one of the Accessible IP Settings rules.
- **Hosts on a specific subnet can access the 5200-N**
  Use a non-trivial Netmask, such as 255.255.255.0, for one of the Accessible IP Settings rules.
- **Any host can access the 5200-N**
  Disable this function by de-selecting the ***Enable the accessible IP list*** option.

The following table shows six specific Accessible IP Settings rules. In the "Input format" column, "192.168.1.123 / 255.255.255.255" means you should enter 192.168.1.123 for IP Address, and 255.255.255.255 for Netmask.

Allowable Hosts	Input format
Any host	Disable
192.168.1.120	192.168.1.120 / 255.255.255.255
192.168.1.1 to 192.168.1.254	192.168.1.0 / 255.255.255.0
192.168.0.1 to 192.168.255.254	192.168.0.0 / 255.255.0.0
192.168.1.1 to 192.168.1.126	192.168.1.0 / 255.255.255.128
192.168.1.129 to 192.168.1.254	192.168.1.128 / 255.255.255.128

Auto Warning Settings

Auto warning: Email and SNMP trap



Mail Server

Mail server

Setting	Factory Default	Necessity
IP Address or Domain Name	*blank*	Optional

User name

Setting	Factory Default	Necessity
1 to 15 characters	*blank*	Optional

Password

Setting	Factory Default	Necessity
1 to 15 characters	*blank*	Optional

From E-mail address

Setting	Factory Default	Necessity
1 to 63 characters	*blank*	Optional

E-mail address 1/2/3/4

Setting	Factory Default	Necessity
1 to 63 characters	*blank*	Optional

ATTENTION

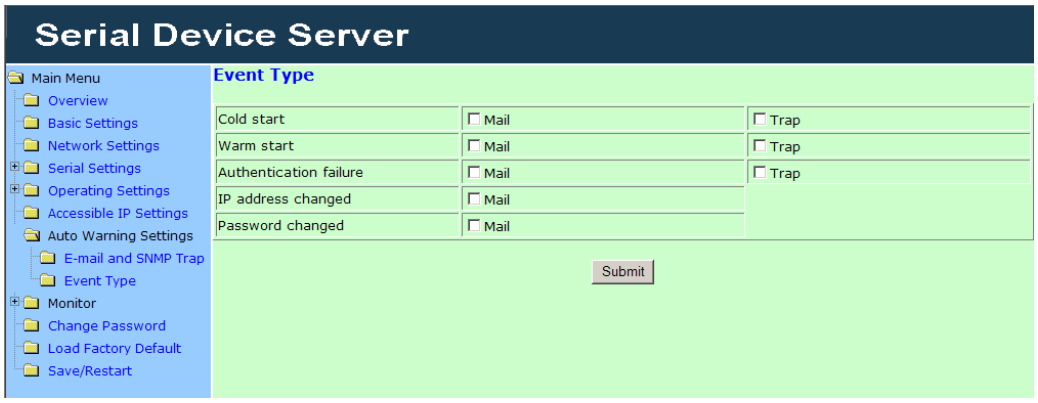
Consult your Network Administrator or ISP for the proper mail server settings. The Auto warning function may not work properly if it is not configured correctly. 5200-N SMTP AUTH supports LOGIN, PLAIN, CRAM-MD5 (RFC 2554).

SNMP Trap Server

SNMP trap server IP or domain name

Setting	Factory Default	Necessity
IP address or Domain Name	*blank*	Optional

Event Type



Cold start

This refers to starting the system from power off (contrast this with warm start). When performing a cold start, 5200-N will issue an Auto warning message automatically by e-mail, or send an SNMP trap after booting up.

Warm start

This refers to restarting the computer without turning the power off. When performing a warm start, 5200-N will send an e-mail automatically, or send an SNMP trap after rebooting.

Authentication failure
Authentication failure occurs when the user inputs a wrong password from the Console or Administrator. When authentication failure occurs, 5200-N will immediately send an e-mail or SNMP trap.

IP address changed
The user has changed 5200-N's IP address. When the IP address changes, 5200-N sends an e-mail with the new IP address before it reboots. If the 5200-N is unable to send an e-mail message to the mail server within 15 seconds, 5200-N will reboot anyway, and abort the e-mail auto warning.

Password changed
The user has changed 5200-N's password. When the password changes, 5200-N will send an e-mail with the password changed notice before 5200-N reboots. If the 5200-N is unable to send an e-mail message to the mail server within 15 seconds, 5200-N will reboot anyway, and abort the e-mail auto warning.

DCD changed

The DCD (Data Carrier Detect) signal has changed, indicating that the modem connection status has changed. For example, a DCD change to high indicates a "Connected" status between local modem and remote modem. If the DCD signal changes to low, it indicates that the connection line is down.

When the DCD changes, 5210-N/5230-N will immediately send an e-mail or send an SNMP trap.

DSR changed

The DSR (Data Set Ready) signal has changed, also indicating that the data communication equipment's power is off. For example, a DSR change to high means that the DCE is powered ON. If the DSR signal changes to low, it means that the DCE is powered off.

When the DSR changes, 5210-N/5230-N will immediately send an e-mail or send an SNMP trap.

Mail

Setting	Factory Default	Necessity
Enable, Disable	Disable	Optional

This feature helps the administrator manage how the 5200-N sends e-mail to pre-defined e-mail boxes when the enabled events—such as Cold start, Warm start, Authentication failure, etc.—occur. To configure this feature, click the Event Type Mail checkbox.

Trap

Setting	Factory Default	Necessity
Enable, Disable	Disable	Optional

This feature helps the administrator manage how the 5200-N sends SNMP Trap to a pre-defined SNMP Trap server when the enabled events—such as Cold start, Warm start, Authentication failure, etc.—occur. To configure this feature, click the Event Type Trap checkbox.

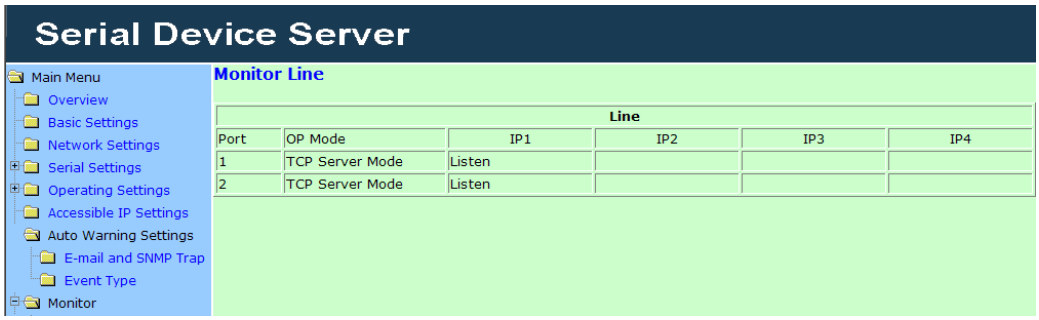
ATTENTION

DCD changed and **DSR changed** events are only supported by RS-232 ports (ports 1 and 2 for 5210-N, and port 1 for 5230-N). Since 5232-N and 5232I-N do not have RS-232 ports, the **DCD changed** and **DSR changed** options will not appear in the **Event Type** screen.

Monitor

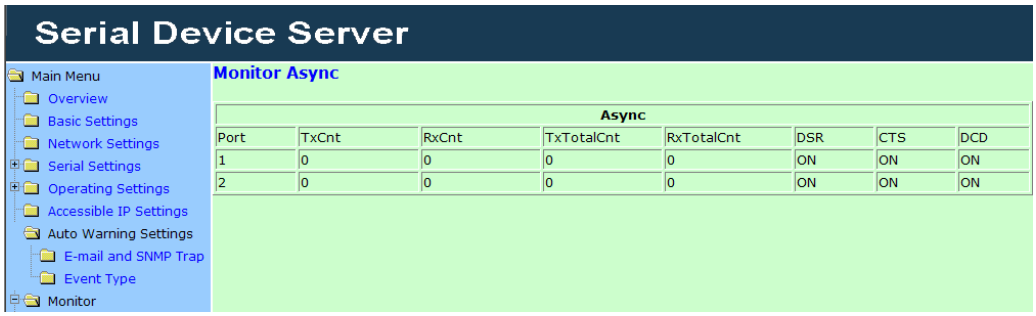
Monitor Line

Click **Line** under **Monitor** to show the operation mode and status of each connection (IPx), for each of the two serial ports.



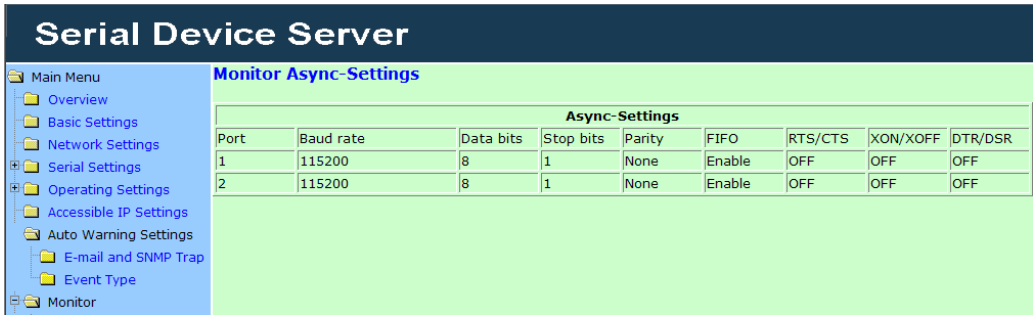
Monitor Async

Click **Async** under **Monitor** to show the current status of each of the two serial ports.



Monitor Async-Settings

Click **Async Setting** under **Monitor** to show the run-time settings for each of the two serial ports.



Change Password

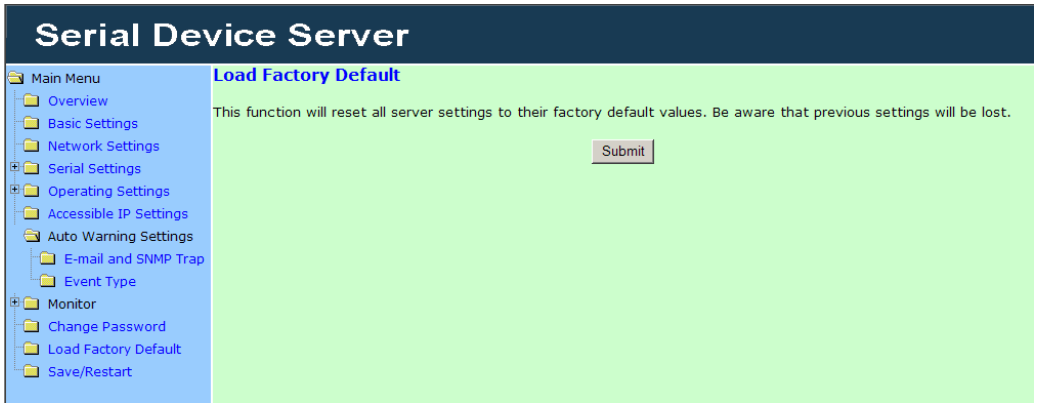
Input the "Old password" and "New password" to change the password. Leave the password boxes blank to erase the password. Keep in mind that if the password is erased, then 5200-N will **not** have password protection.

ATTENTION

If you forget the password, the ONLY way to configure 5200-N is by using the Reset button on 5200-N's casing to "Load Factory Default."

Remember to export the configuration file using Device Server Administrator when you finish the configuration. By using the Import function of Device Server Administrator, your configuration can be re-loaded into 5200-N after using "Load Factory Default." Refer to Chapter 6 for more details about the Export and Import function.

Load Factory Default



Use this function to reset all of 5200-N's settings to the factory default values. Be aware that previous settings will be lost.

6

Configuring Device Server Administrator

The following topics are covered in this chapter:

- **Overview**
- **Installing Device Server Administrator**
- **Configuration**
  - Broadcast Search
  - Unlock Password Protection
  - Configuring 5200-N
  - Upgrading the Firmware
  - Export Configuration
  - Import Configuration
- **Monitor**
- **Port Monitor**
- **COM Mapping**
  - On-line COM Mapping
  - Off-line COM Mapping
- **IP Location**

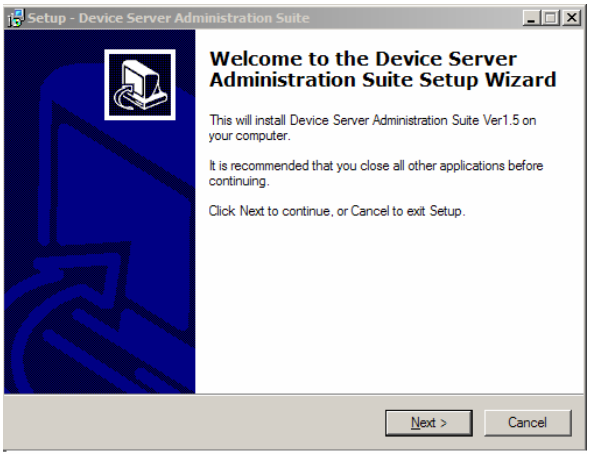
Overview

Device Server Administrator lets you install and configure your 5200-N Series products easily over the network. Five function groups are provided to ease the installation process, allow off-line COM mapping, and provide monitoring and IP location server functions.

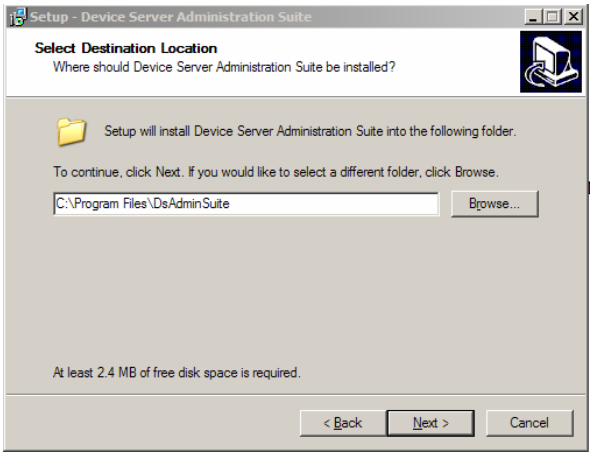
Device Server Administrator is an integrated software suite that bundles Device Server Administrator and the IP Serial Library, and provides everything you need to manage, monitor, and modify your 5200-N from a remote location.

Installing Device Server Administrator

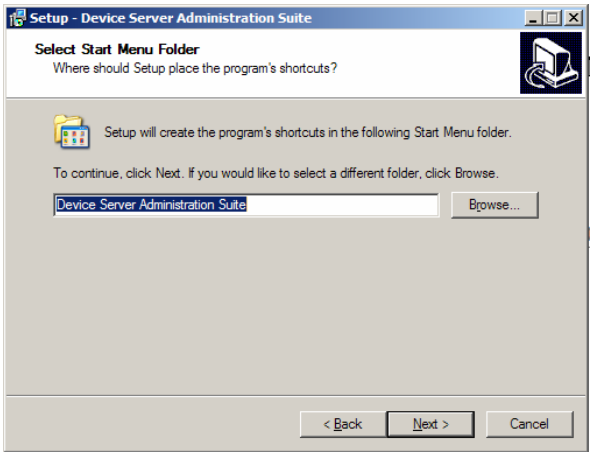
1. Once the Setup program starts running, click **Next** when the **Welcome** window opens to proceed with the installation.


Setup - Device Server Administration Suite
Welcome to the Device Server Administration Suite Setup Wizard
This will install Device Server Administration Suite Ver1.5 on your computer.
It is recommended that you close all other applications before continuing.
Click Next to continue, or Cancel to exit Setup.
Next >
Cancel

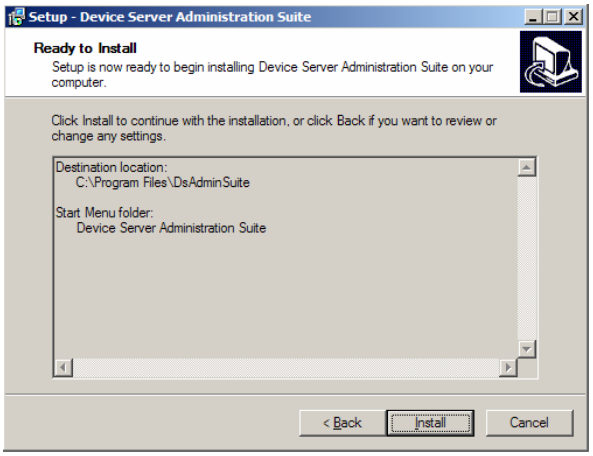
2. Click **Next** to install program files in the default directory, or select an alternative location.


Setup - Device Server Administration Suite
Select Destination Location
Where should Device Server Administration Suite be installed?
Setup will install Device Server Administration Suite into the following folder.
To continue, click Next. If you would like to select a different folder, click Browse.
C:\Program Files\DsAdminSuite
Browse...
At least 2.4 MB of free disk space is required.
< Back
Next >
Cancel

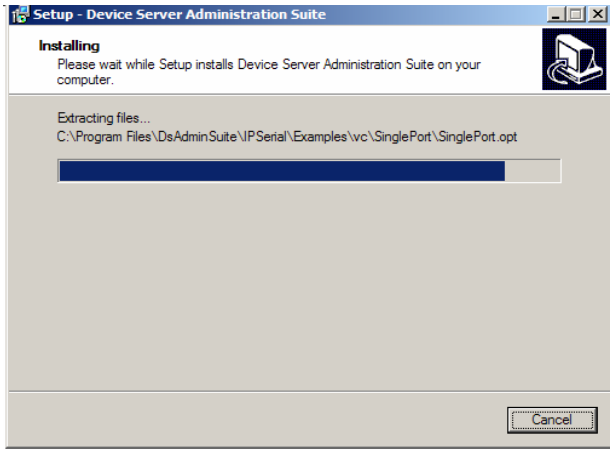
3. Click **Next** to install the program using the default program name, or select a different name.


Setup - Device Server Administration Suite
Select Start Menu Folder
Where should Setup place the program's shortcuts?
Setup will create the program's shortcuts in the following Start Menu folder.
To continue, click Next. If you would like to select a different folder, click Browse.
Device Server Administration Suite
Browse...
< Back
Next >
Cancel

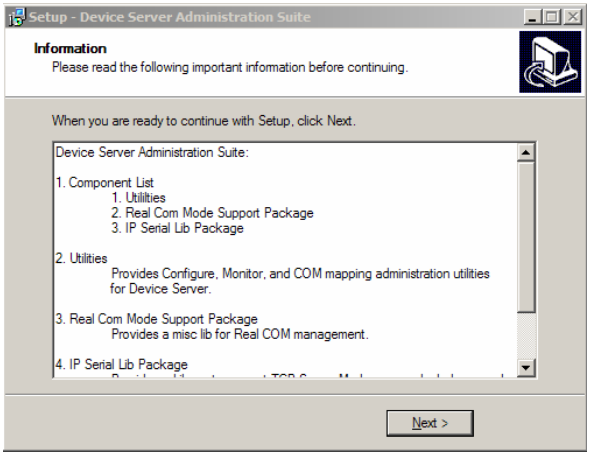
4. Click **Install** to proceed with the installation.


Setup - Device Server Administration Suite
Ready to Install
Setup is now ready to begin installing Device Server Administration Suite on your computer.
Click Install to continue with the installation, or click Back if you want to review or change any settings.
Destination location:
C:\Program Files\DsAdminSuite
Start Menu folder:
Device Server Administration Suite
< Back
Install
Cancel

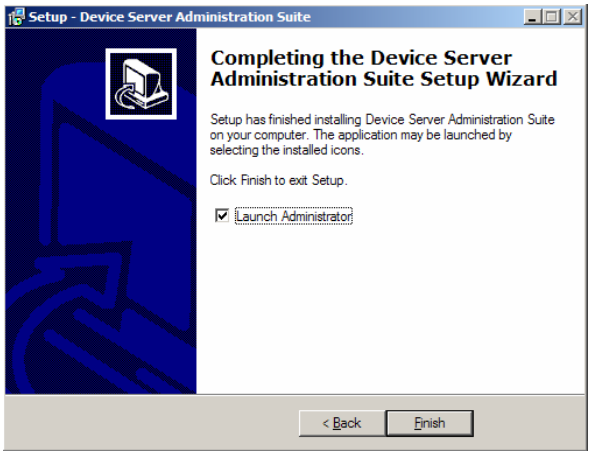
5. The **Installing** window reports the progress of the installation.


Setup - Device Server Administration Suite
Installing
Please wait while Setup installs Device Server Administration Suite on your computer.
Extracting files...
C:\Program Files\DsAdminSuite\IPSerial\Examples\vc\SinglePort\SinglePort.opt
Cancel

6. Click **Next** to proceed with the installation.


Setup - Device Server Administration Suite
Information
Please read the following important information before continuing.
When you are ready to continue with Setup, click Next.
Device Server Administration Suite:
1. Component List
1. Utilities
2. Real Com Mode Support Package
3. IP Serial Lib Package
2. Utilities
Provides Configure, Monitor, and COM mapping administration utilities for Device Server.
3. Real Com Mode Support Package
Provides a misc lib for Real COM management.
4. IP Serial Lib Package
Next >

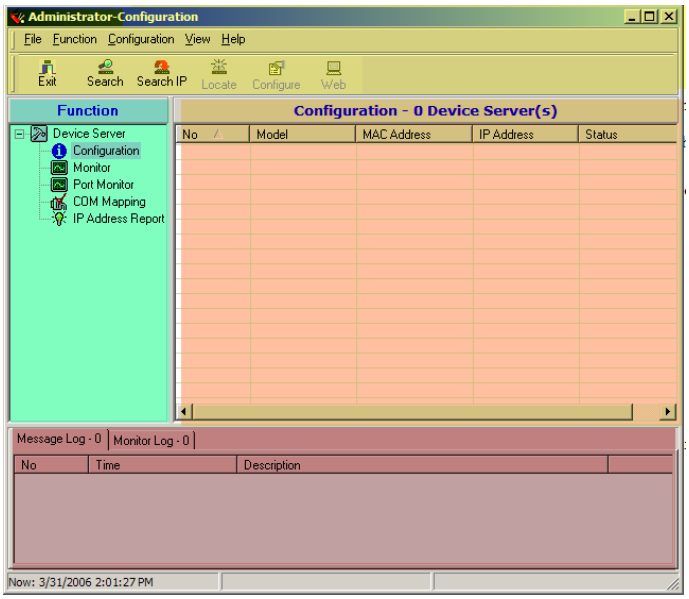
7. Click **Finish** to complete the installation of 5200-N Administration Suite.


Setup - Device Server Administration Suite
Completing the Device Server Administration Suite Setup Wizard
Setup has finished installing Device Server Administration Suite on your computer. The application may be launched by selecting the installed icons.
Click Finish to exit Setup.
Launch Administrator
< Back
Finish

Configuration

The Administrator-Configuration window is divided into four parts.

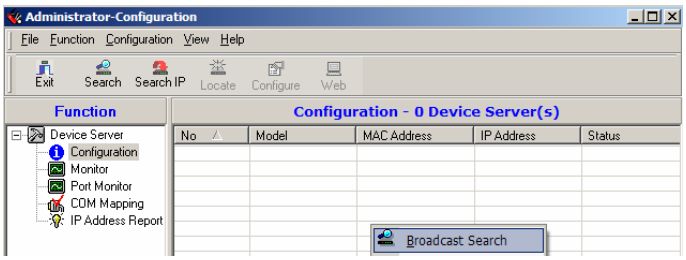
- The top section contains the function list and online help area. (Windows NT does not support this .chm file format.)
- The five Administrator function groups are listed on the left.
- A list of 5200-N serial device servers, each of which can be selected to process user requirements, is displayed on the right.
- The activity Log, which displays messages that record the user's processing history, is shown on the lower section.



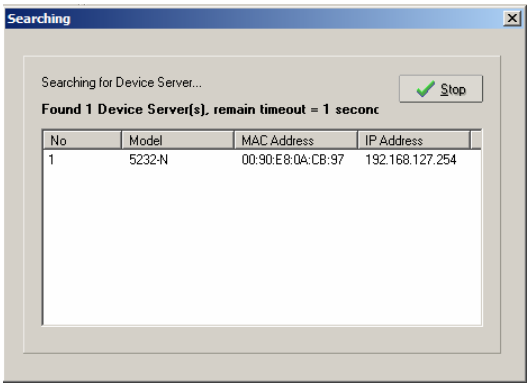
Broadcast Search

The **Broadcast Search** function is used to locate all 5200-Ns that are connected to the same LAN as your computer. Since the Broadcast Search function searches by MAC address and not IP address, all 5200-Ns connected to the LAN will be located, regardless of whether or not they are part of the same subnet as the host.

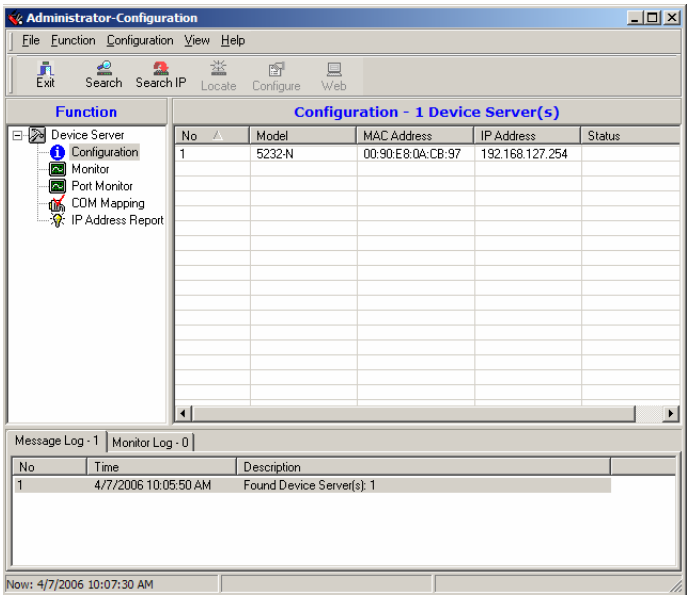
1. Position the cursor in the right middle section of the Administrator window and then click the right mouse button.



2. The **Broadcast Search** window will open and display the Model, IP Address, MAC Address, and Progress of the search for that particular device.


Searching
Searching for Device Server...
Stop
Found 1 Device Server(s), remain timeout = 1 seconc
No Model MAC Address IP Address
1 5232-N 00:90:E8:0A:CB:97 192.168.127.254

3. When the search is complete, the Broadcast Search window will close, and the 5200-Ns that were located will be displayed in the right pane of the Administrator window. If you found more than one server connected to this network, refer to the MAC address sticker on your server(s) to determine which server(s) are the ones you wish to configure. To configure a 5200-N, place the cursor over the row displaying that 5200-N's information, and then double click the left mouse button.

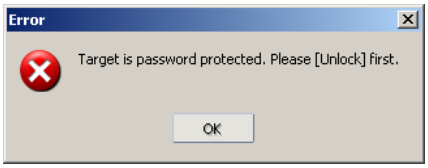


ATTENTION

Before modifying 5200-N's configuration, use **Broadcast Search** to locate all 5200-Ns connected to the LAN, or use **Specify by IP Address** to locate a particular 5200-N.

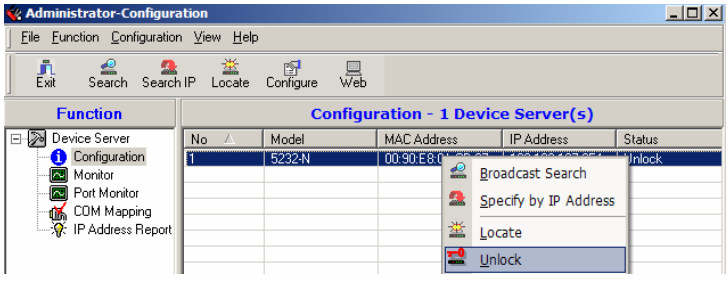
Unlock Password Protection

If the 5200-N is password protected (indicated by "Lock" for Status), you will receive the following error, and you will not be able to use the right click method to open the configuration page.

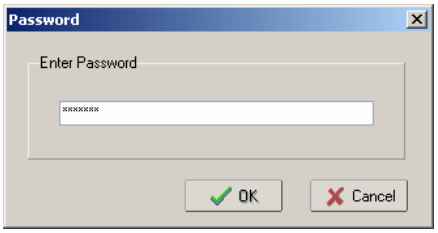


In this case, proceed as follows to "Unlock" the device server.

1. Select the 5200-N with "Lock" status, click the right mouse button, and then select **Unlock**.

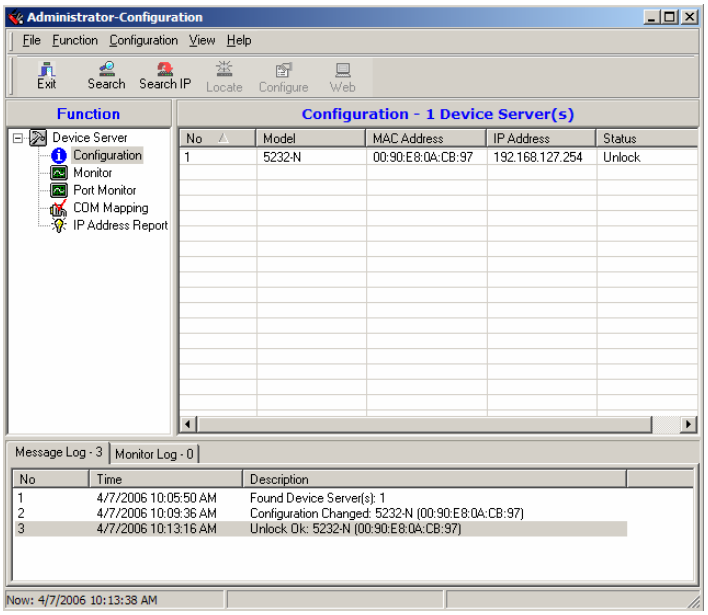


2. Input the password and then click **OK**.



3. The Administrator will display an "Unlock ok" message.

4. The "Lock" status will change to "Unlock," and the Administrator utility will keep this 5200-N in the Unlock status throughout this Administrator session.


Administrator-Configuration
File Function Configuration View Help
Exit Search Search IP Locate Configure Web
Function
Configuration - 1 Device Server(s)
Device Server
Configuration
Monitor
Port Monitor
COM Mapping
IP Address Report
No Model MAC Address IP Address Status
1 5232-N 00:90:E8:0A:CB:97 192.168.127.254 Unlock
Message Log - 3
Monitor Log - 0
No Time Description
1 4/7/2006 10:05:50 AM Found Device Server(s): 1
2 4/7/2006 10:09:36 AM Configuration Changed: 5232-N (00:90:E8:0A:CB:97)
3 4/7/2006 10:13:16 AM Unlock Ok: 5232-N (00:90:E8:0A:CB:97)
Now: 4/7/2006 10:13:38 AM

The status modes are as follows (note that the term Fixed is borrowed from the standard fixed IP address networking terminology):

Lock
The 5200-N is password protected, "Broadcast Search" was used to locate it, and the password has not yet been entered from within the current Administrator session.

Unlock
The 5200-N is password protected, "Broadcast Search" was used to locate it, and the password has been entered from within the current Administrator session. Henceforth, during this Administrator session, activating various utilities for this 5200-N will not require re-entering the server password.

Blank
The 5200-N is not password protected, and "Broadcast Search" was used to locate it.

Fixed
The 5200-N is not password protected, and "Search by IP address" was used to locate it.

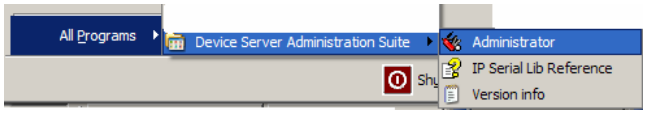
Lock Fixed
The 5200-N is password protected, "Specify by IP address" was used to locate it, and the password has not yet been entered from within the current Administrator session.

Unlock Fixed
The 5200-N is password protected, "Specify by IP address" was used to locate it, and the password has been entered from within the current Administrator session. Henceforth, during this Administrator session, activating various utilities for this 5200-N will not require re-entering the server password.

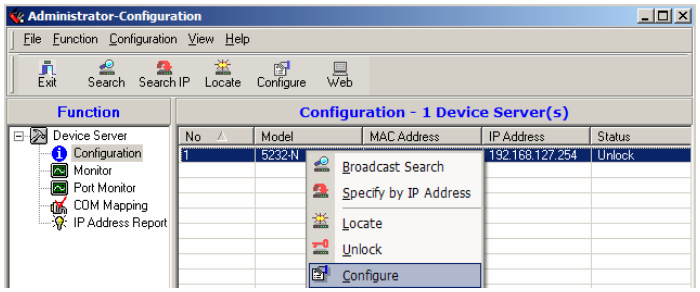
Configuring 5200-N

In this section, we illustrate how to access 5200-N's configuration utility. You should first make sure that you can connect over the network from your computer to the 5200-N.

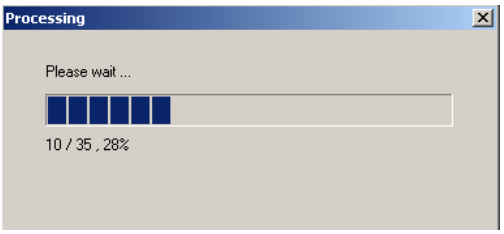
1. To start Device Server Administrator, click **Start → Device Server Administration Suite → Device Server Administrator**.



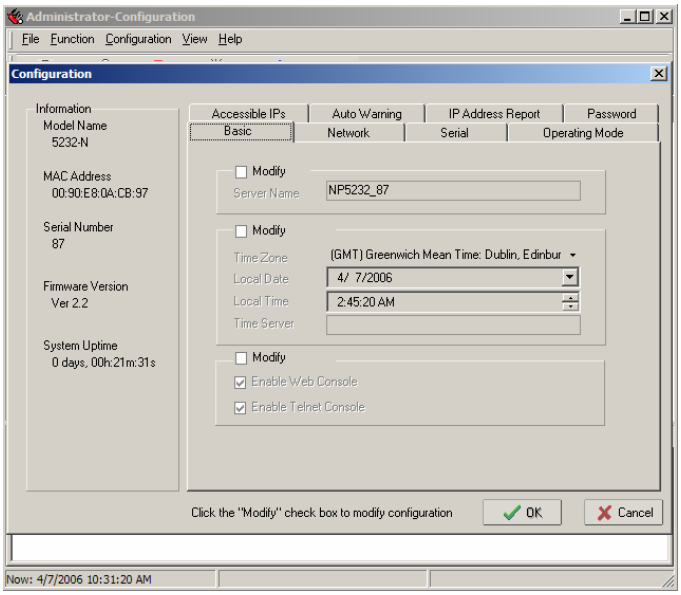
2. Unlock the 5200-N you wish to configure, if it is password protected. Right click the 5200-N and select **Configure** to start the configuration.



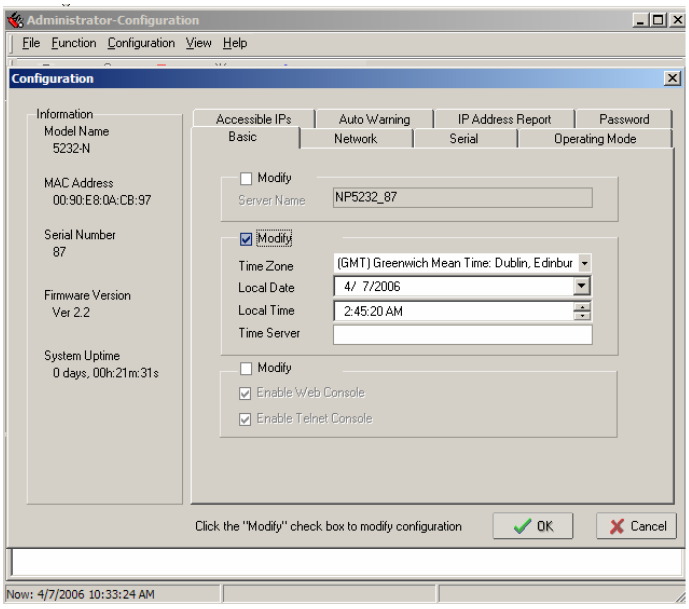
3. The progress bar shows that Administrator is retrieving configuration information from the specific 5200-N.



4. Refer to Chapter 5 for each parameter's function definition. To modify the configuration, you must first click in the modify box to activate the parameter setting box. For example, click the middle modify box.



5. You will now be able to modify **Time Zone**, **Local Date**, **Local Time**, and **Time Server**.



ATTENTION

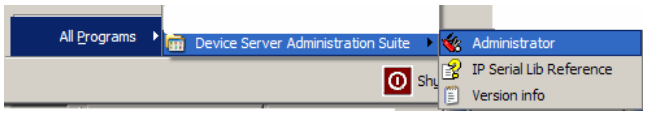
You can simultaneously modify the configurations of multiple 5200-Ns that are of the same model.

To select multiple 5200-Ns, hold down the Ctrl key when selecting additional 5200-Ns, or hold down the Shift key to select a group of 5200-Ns.

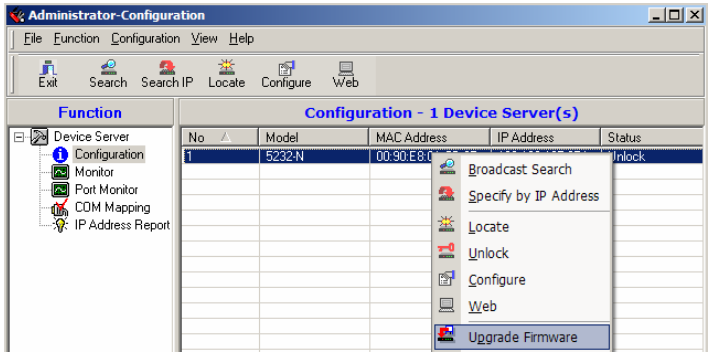
Upgrading the Firmware

Follow these steps to upgrade the firmware of a 5200-N.

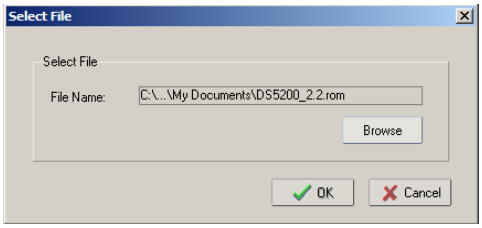
1. To start Device Server Administrator, click **Start → Device Server Administration Suite → Device Server Administrator**.



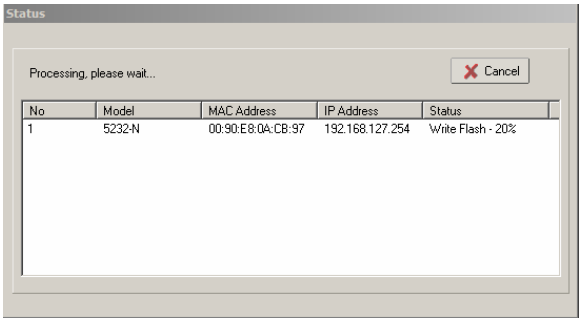
2. Unlock the 5200-N you wish to configure, if it is password protected. Right click a specific 5200-N and select the **Upgrade Firmware** function to start upgrading the firmware.



3. Select the correct ROM file to download.



4. Wait while the Upgrade Firmware action is processed.


Status
Processing, please wait...
Cancel
No Model MAC Address IP Address Status
1 5232-N 00:90:E8:0A:CB:97 192.168.127.254 Write Flash - 20%

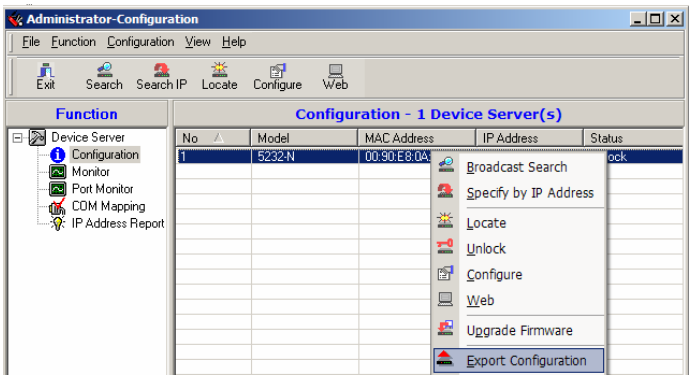
ATTENTION

You can simultaneously upgrade the firmware of multiple 5200-Ns that are of the same model.

To select multiple 5200-Ns, hold down the Ctrl key when selecting an additional 5200-N, or hold down the Shift key to select a block of 5200-Ns.

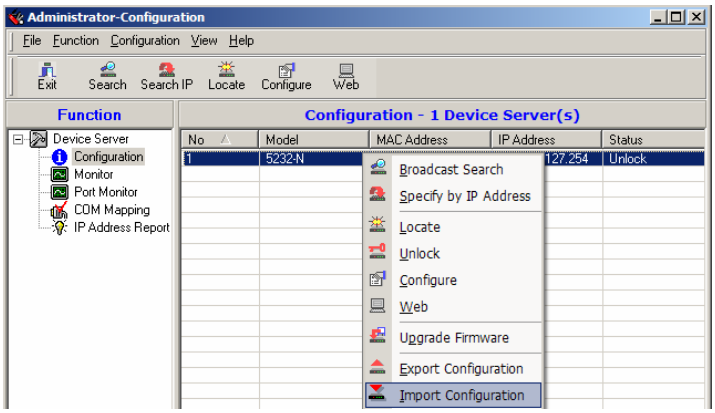
Export Configuration

To export the configuration of a 5200-N, right click the 5200-N, select **Export Configuration**, and then follow the onscreen instructions. The Export Configuration function is a handy tool that can be used to produce a text file containing the current configuration of a particular 5200-N.



Import Configuration

The Import Configuration function is used to import a 5200-N configuration from a file into one or more of other 5200-Ns of the same model. To import a configuration, first select the target servers, click the right mouse button, and then select **Import Configuration**. Follow the onscreen instructions to locate the configuration file and start downloading the file.



ATTENTION

You can simultaneously import the same configuration file into multiple 5200-Ns that are of the same model.

To select multiple 5200-Ns, hold down the Ctrl key when selecting an additional 5200-N, or hold down the Shift key to select a block of 5200-Ns.

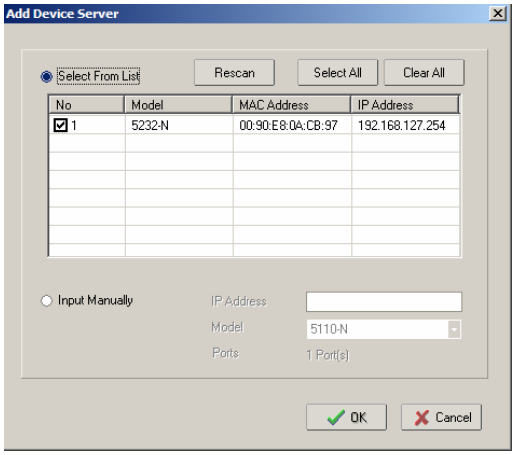
Monitor

Use one of the following two methods to start the Monitor function.

Broadcast Search → Monitor → Add Target

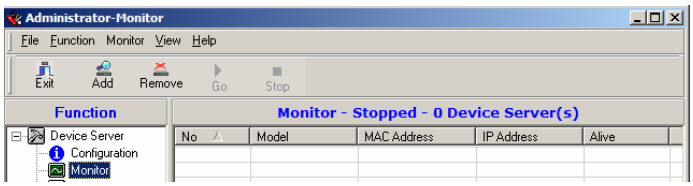
1. With **Configuration** selected under **Function**, use **Broadcast Search** to locate all Device Servers on your LAN.

2. Next, click **Monitor → Add Target**, select your targets from the list, and then click **OK**.

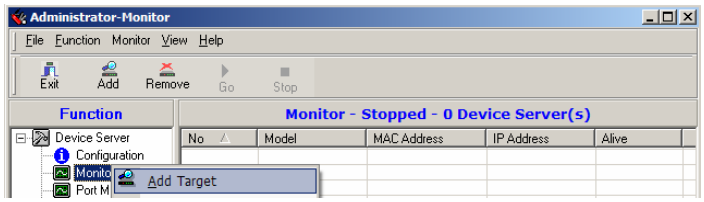


Monitor → Add Target → Rescan

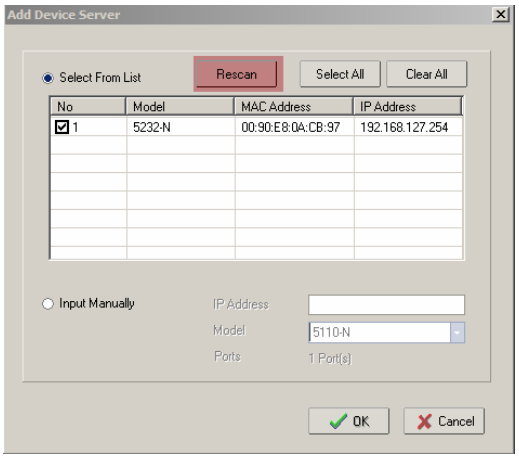
1. Click **Monitor** under **Function**.



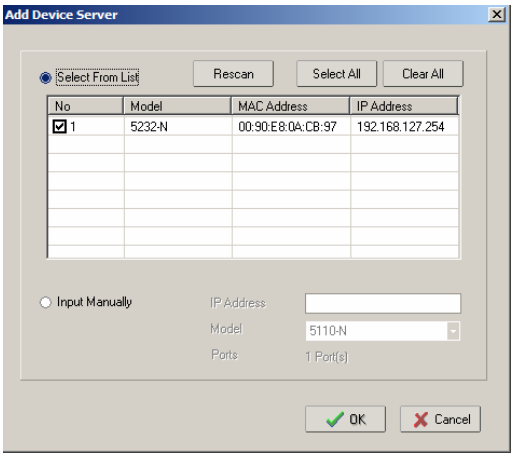
2. Click **Monitor → Add Target** from the menu bar, or click the right mouse button and select **Add Target**.



3. Click **Rescan**.

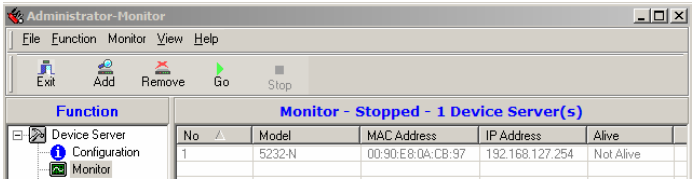


4. Select your targets from the list, and then click **OK**.

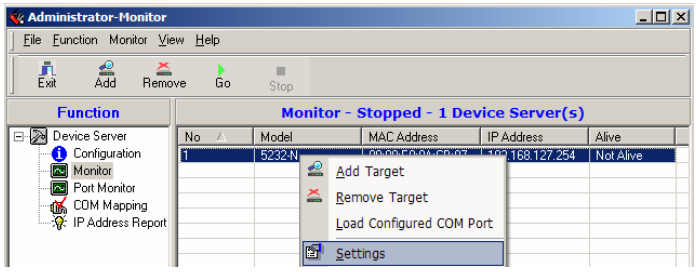


Once the Monitor function is running:

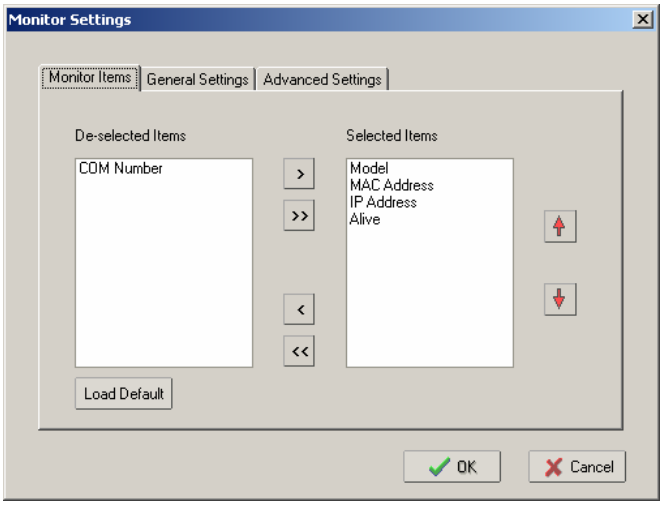
1. The 5200-N list will appear on the Monitor screen.



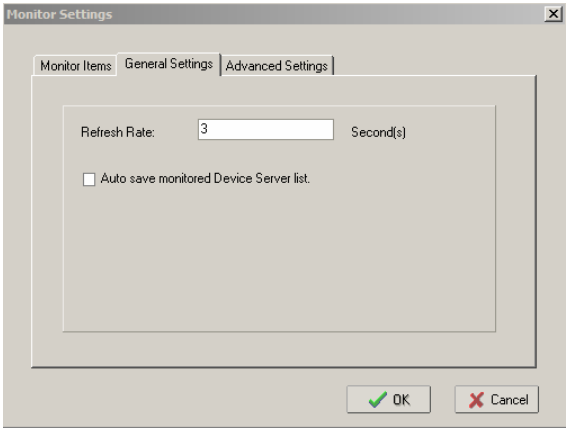
2. Right click the panel and select **Settings**.



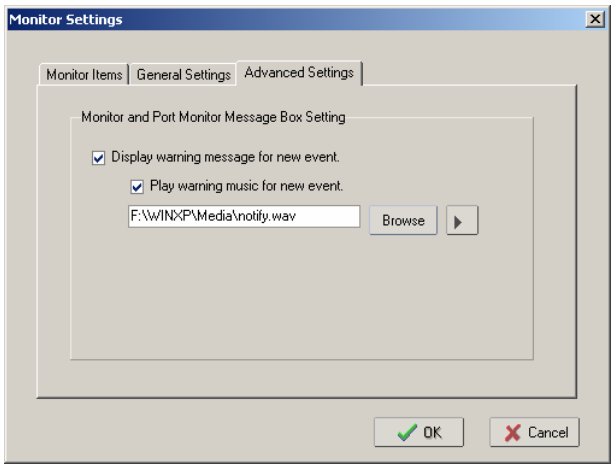
3. Select or de-select **Monitor Items**. Use the single arrowhead buttons to move highlighted items from one box to the other. Use the double arrowhead buttons to move all items in one box to the other.



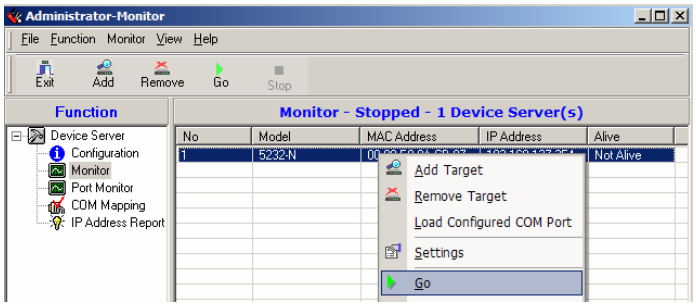
4. Select a **Refresh Rate** (the default is 3 seconds) on the **General Settings** page.



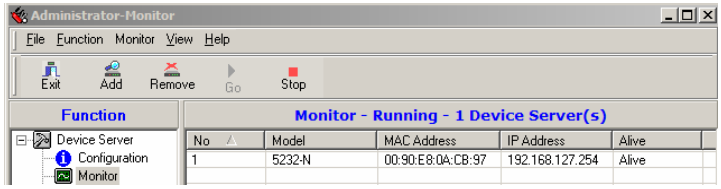
5. On the **Advanced Settings** page, select **Display warning message for new event** and/or **Play warning music for new event**. In the second case, you must enter the path to the WAV file that you want to be played. "New event" indicates that one of the 5200-Ns in the monitor is "Alive" or "Not Alive," or has lost connection with the Monitor program.



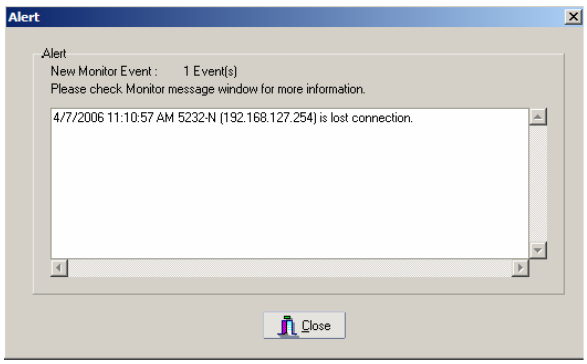
6. Right click in the 5200-N list section and select **Go** to start Monitoring the 5200-N.



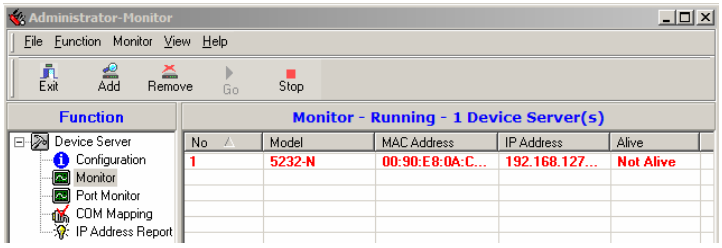
7. For this example, the 5200-Ns shown in the list will be monitored.



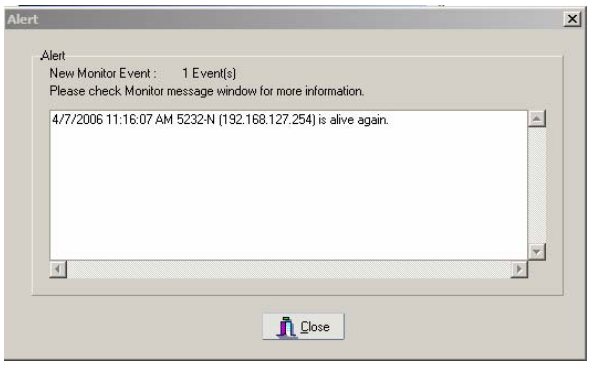
8. When one of the 5200-Ns loses connection with the Monitor program, a warning alert will be displayed automatically. The warning music will be played at the same time.


Alert
Alert
New Monitor Event : 1 Event(s)
Please check Monitor message window for more information.
4/7/2006 11:10:57 AM 5232-N (192.168.127.254) is lost connection.
Close

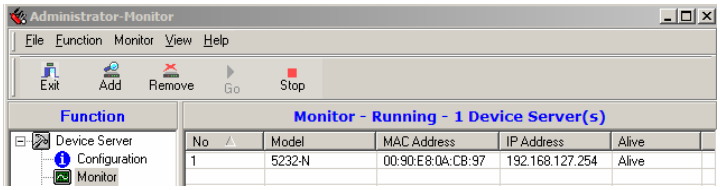
9. On the Monitor screen, the 5200-Ns that are "Not Alive" are shown in red.



10. If the 5200-N gets reconnected, a warning will be displayed to remind the user that the 5200-N is now "Alive."

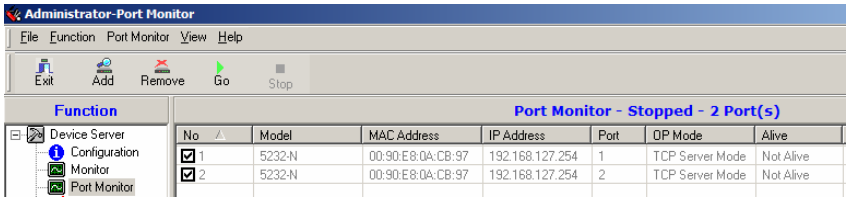

Alert
Alert
New Monitor Event : 1 Event(s)
Please check Monitor message window for more information.
4/7/2006 11:16:07 AM 5232-N (192.168.127.254) is alive again.
Close

11. The 5200-Ns that were reconnected, and are now "Alive," will be shown in black.

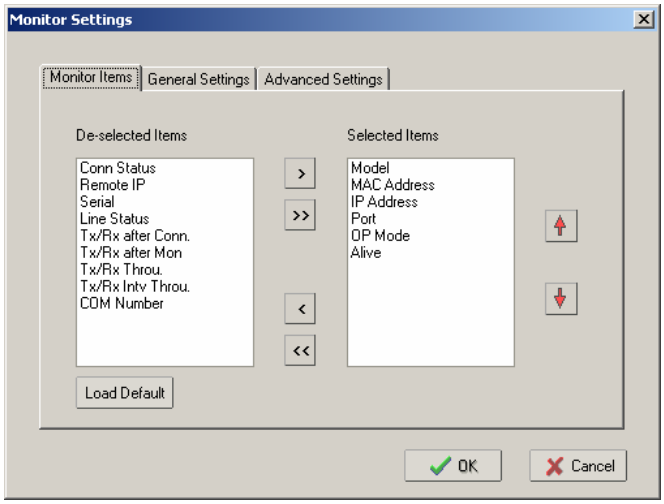


Port Monitor

The process described here is the same as in the previous "Monitor" section. The only difference is that you can select more items under Port Monitor than under Monitor.


Administrator-Port Monitor
File Function Port Monitor View Help
Exit Add Remove Go Stop
Function
Port Monitor - Stopped - 2 Port(s)
Device Server
Configuration
Monitor
Port Monitor
No Model MAC Address IP Address Port OP Mode Alive
1 5232-N 00:90:E8:0A:CB:97 192.168.127.254 1 TCP Server Mode Not Alive
2 5232-N 00:90:E8:0A:CB:97 192.168.127.254 2 TCP Server Mode Not Alive

Select or de-select **Monitor Items**. Use the single arrowhead buttons to move highlighted items from one box to the other. Use the double arrowhead buttons to move all items in one box to the other.



COM Mapping

Device Server Administration Suite comes with Windows 95/98/ME/NT/2000/XP Real COM drivers. After you install 5200-N Administration Suite, there are two ways to set up the 5200-N serial port as your host's remote COM port.

The first way is with **On-line COM Mapping**. On-line COM Mapping will check to make sure that the 5200-N is connected correctly to the network, and then install the driver on the host computer.

The second way is with **Off-line COM Installation**, without first connecting the 5200-N to the network. Off-line COM Mapping can decrease the system integrator's effort by solving different field problems. Via off-line installation, users can first process software installation for the host, and then install the 5200-N to different fields.

Use the following procedure to map COM ports:

1. On-line COM Mapping:

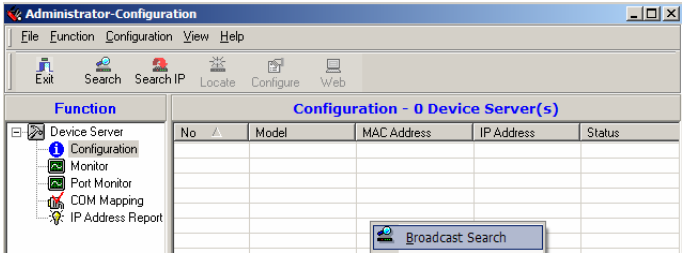
   Connect 5200-N to the network → Set 5200-N to the proper IP address → Map COMs to your host → Apply Change.

2. Off-line COM Mapping:

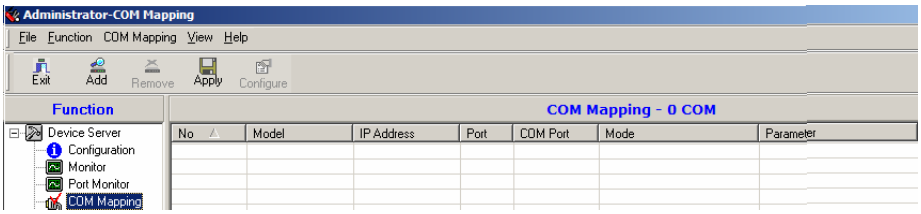
   Map COMs to your host → Apply Change → Connect 5200-N to the network → Configure 5200-N's IP address.

On-line COM Mapping

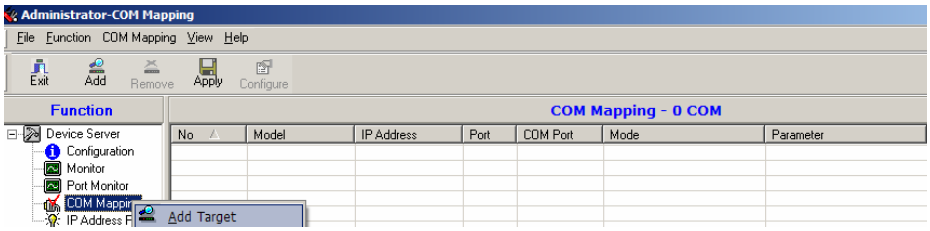
1. **Broadcast Search** for 5200-Ns on the network.



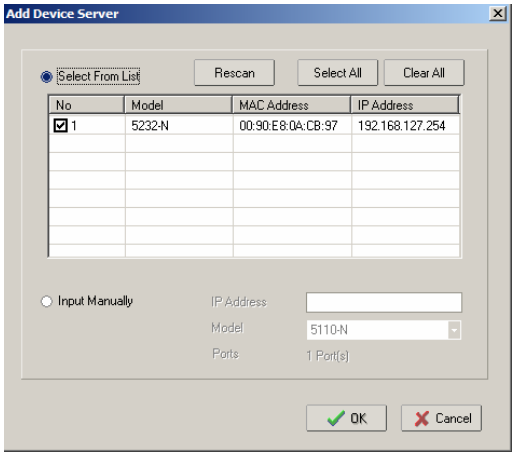
2. Select the **COM Mapping** function group.



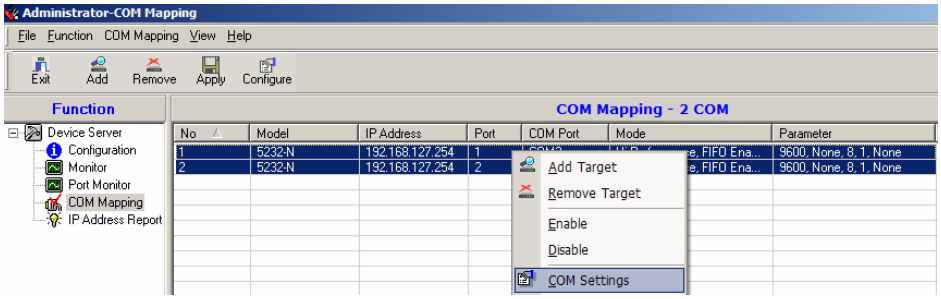
3. Add the target to which you would like to map COM ports.



4. The 5200-N list that appears is the list generated by the previous Broadcast Search. Select the 5200-N to which you would like to map COM ports.



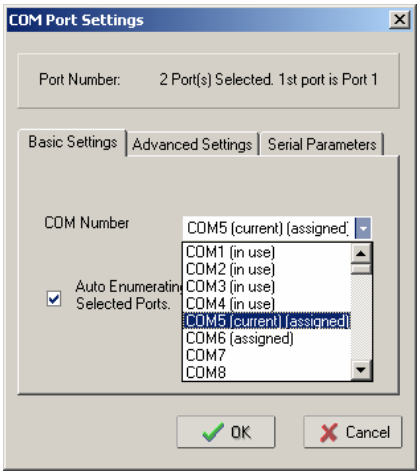
5. Select **COM Settings** to modify COM No., default setting, etc.

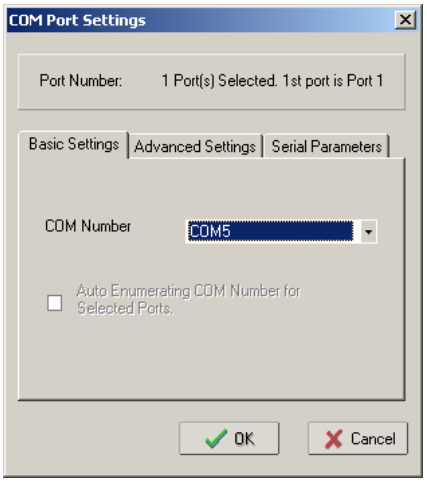


6. Select the COM No.

   COM ports that are "In use" or "Assigned" will also be indicated in this drop-down list.

   If you select multiple serial ports or multiple 5200-Ns, remember to select the "Auto Enumerating" function to use the COM No. you select as the first COM No.





7. **Hi-performance** mode is the default for Tx mode. If the driver completes sending data out to the 5200-N, the driver will respond "Tx Empty" to the program.

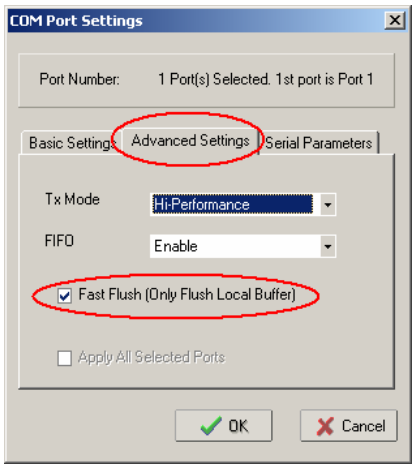
   Under **classical mode**, the driver will not notify the user's program that Tx is completed until all Tx data has been sent out from the 5200-N. This mode will cause lower throughput. If you want to ensure that all data is sent out before further processing, classical mode is recommended.

   Enable/Disable Tx/Rx FIFO. If disabled, 5200-N will send one byte each time the Tx FIFO becomes empty; and an Rx interrupt will be generated for each incoming byte. This will result in a faster response and lower throughput. If you want to use XON/XOFF flow control, we recommend setting FIFO to Disable.

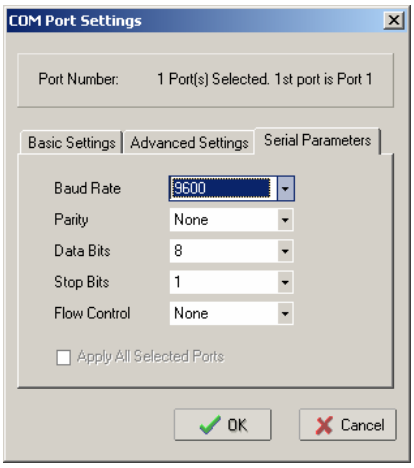
   Fast Flush (only flush local buffer)

   - We have added one optional Fast Flush function to the new 5200-N Real COM driver. **Device Server Administrator Suite for 2G 5200-N** adds it after version **1.2**.
   - For some applications, the user's program will use the Win32 "PurgeComm()" function before it reads or writes data. With our design, after the program uses this Purge Comm() function, the 5200-N driver will keep querying 5200-N's firmware several times to make sure there is really no data queued in the 5220-N firmware buffer, rather than just flushing the local buffer. This kind of design is used because of some special considerations. However, it might take more time (in the order of several hundred milliseconds) than a native COM1, because it needs to work via Ethernet. This is the reason why the native COM ports on the motherboard can work fast with this function call, but 5200-N requires much more time. In order to accommodate other applications that require a faster response time, the new 5200-N driver implements a new "Fast Flush" option. Note that by default, this function is disabled.
   - To begin with, make sure there are some "PurgeComm()" functions being used in your application program. In this kind of situation, you might find that your 5200-N exhibits a much poorer operation performance than when using the native COM1 port. Once you have enabled the "Fast Flush" function, you can check to see if there has been an improvement in performance.

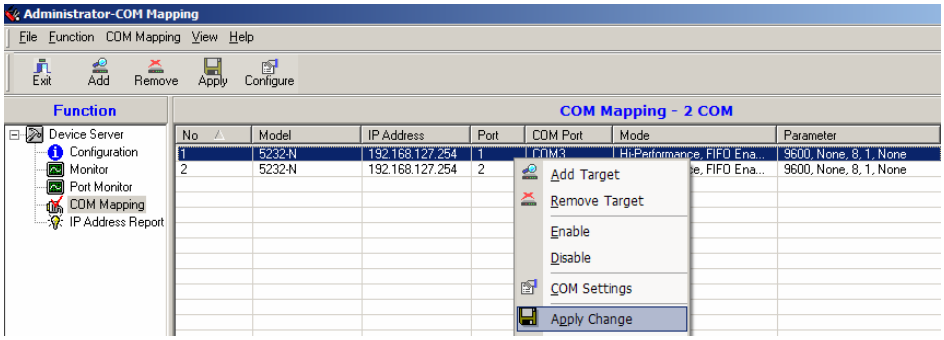
- By default, the optional "Fast Flush" function is disabled. If you would like to enable this function, from the "Device Server Administrator," double click the COM ports that are mapped to the 5200-N, and then select the "Fast Flush" checkbox. You should find that when "Fast Flush" is enabled, the 5200-N driver will work faster with "PurgeComm()."



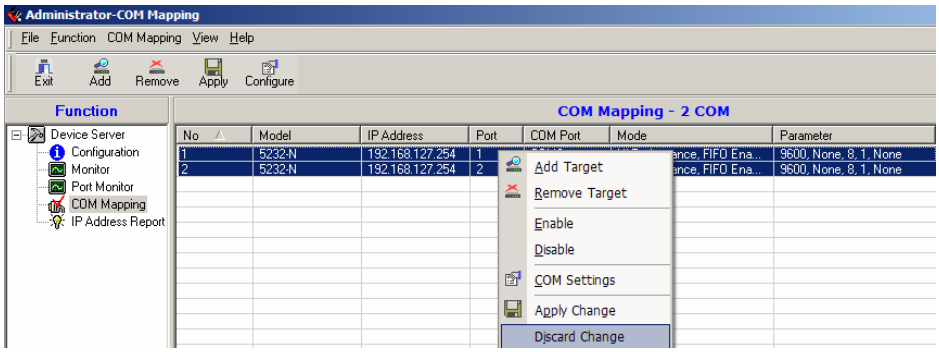
8. The Serial Parameter settings shown here are the default settings when the 5200-N is powered on. However, the program can redefine the serial parameters to different values after the program opens the port via Win 32 API.



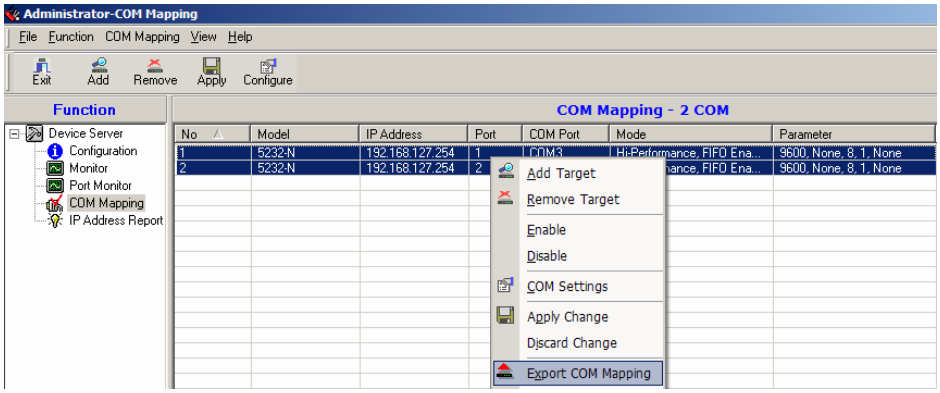
9. After setting the COM Mapping, remember to select **Apply Change** to save the information in the host system registry. The host computer will not have the ability to use the COM port until after **Apply Change** is selected.



10. Select **Discard Change** to tell Administrator NOT to save the COM Mapping information to the host.

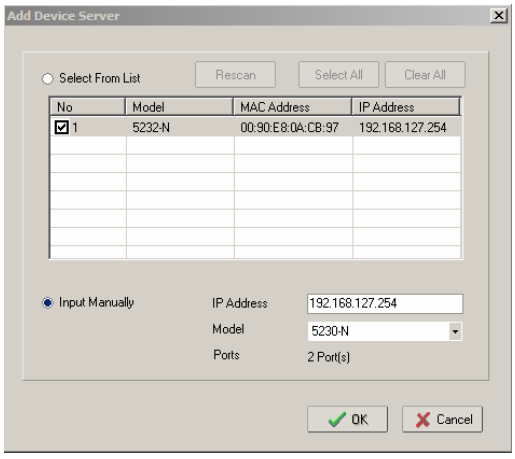


11. To save the configuration to a text file, select **Export COM Mapping**. You will then be able to import this configuration file to another host and use the same COM Mapping settings in the other host.

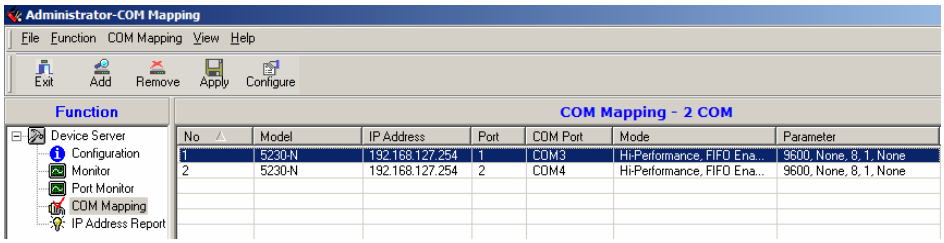


Off-line COM Mapping

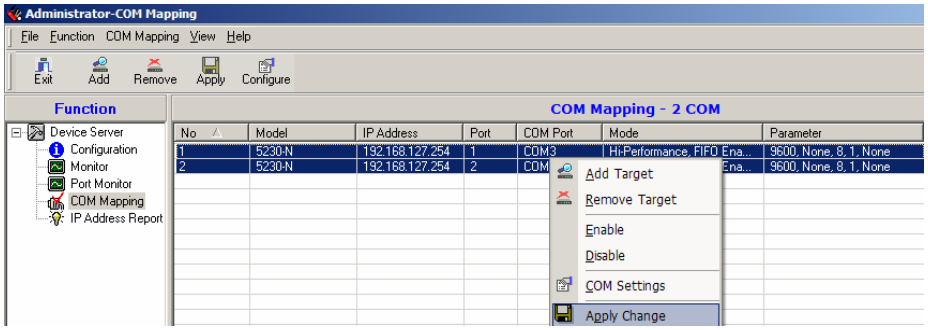
1. Add a target by entering the IP address and selecting the Model Name without physically connecting the 5200-N to the network.



2. Modify the port settings as needed.


Administrator-COM Mapping
File Function COM Mapping View Help
Exit Add Remove Apply Configure
Function
COM Mapping - 2 COM
Device Server
Configuration
Monitor
Port Monitor
COM Mapping
IP Address Report
No Model IP Address Port COM Port Mode Parameter
1 5230-N 192.168.127.254 1 COM3 Hi-Performance, FIFO Ena... 9600, None, 8, 1, None
2 5230-N 192.168.127.254 2 COM4 Hi-Performance, FIFO Ena... 9600, None, 8, 1, None

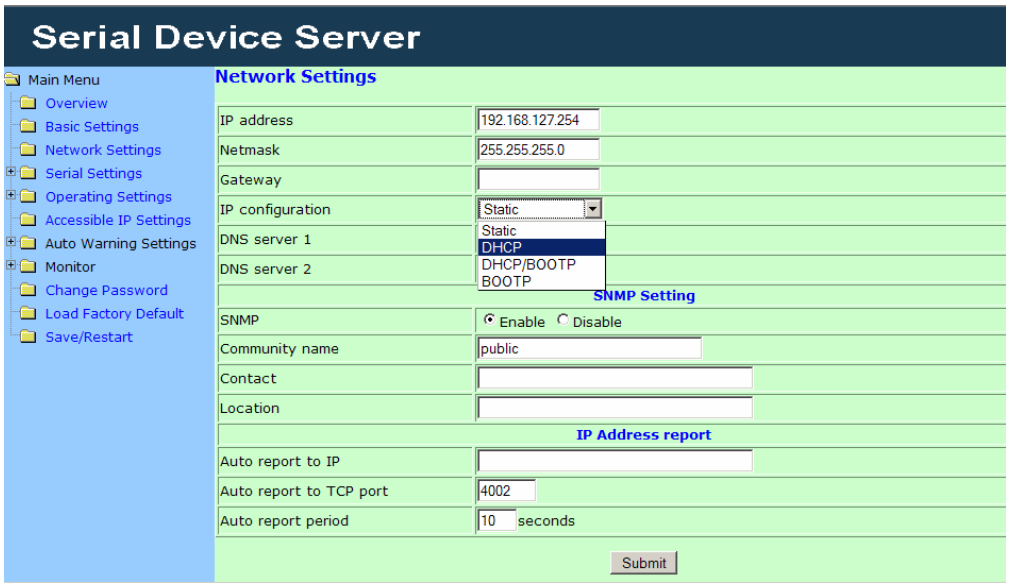
3. Right click in the 5200-N list section and select **Apply Change**.



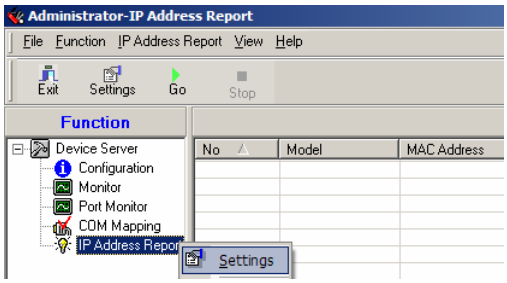
IP Location

When 5200-N is used in a dynamic IP environment, users must spend more time with IP management tasks. 5200-N Series products help out by periodically reporting their IP address to the IP location server, in case the dynamic IP has changed.

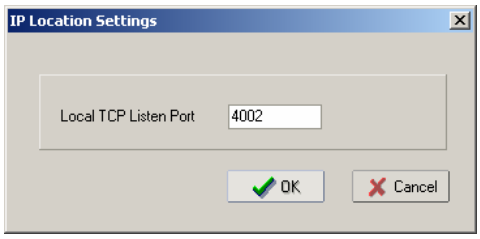
1. Configure 5200-N with Dynamic IP settings (DHCP, BOOTP, or DHCP/BOOTP). Assign the remote Auto IP report server's IP address and UDP port.



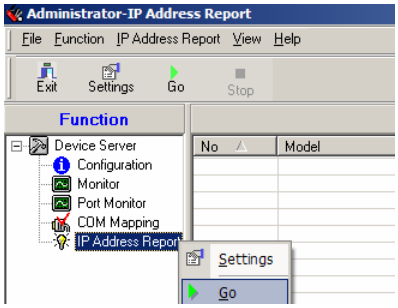
2. Select **IP Location Report** and click the right mouse button to select Settings.

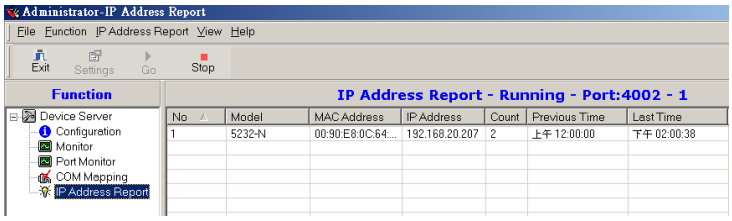


3. Configure the Local Listen Port to be the same as the 5200-N's "Auto report to UDP port" setting.



4. Click **Go** to start receiving the Auto IP address report from the 5200-N




Administrator-IP Address Report
File Function IP Address Report View Help
Exit Settings Go Stop
Function
IP Address Report - Running - Port:4002 - 1
Device Server
Configuration
Monitor
Port Monitor
COM Mapping
IP Address Report
No Model MAC Address IP Address Count Previous Time Last Time
1 5232-N 00:90:E8:0C:64:... 192.168.20.207 2 上午 12:00:00 下午 02:00:38

7

IP Serial LIB

The following topics are covered in this chapter:

- **Overview**
- **IP Serial LIB Function Groups**
- **Example Program**

Overview

What is IP Serial Library?

IP Serial Library is a Windows library with frequently used serial command sets and subroutines. IP Serial Library is designed to reduce the complexity and poor efficiency of serial communication over TCP/IP. For example, Telnet can only transfer data, but it can't monitor or configure the serial line's parameters.

Why Use IP Serial Library?

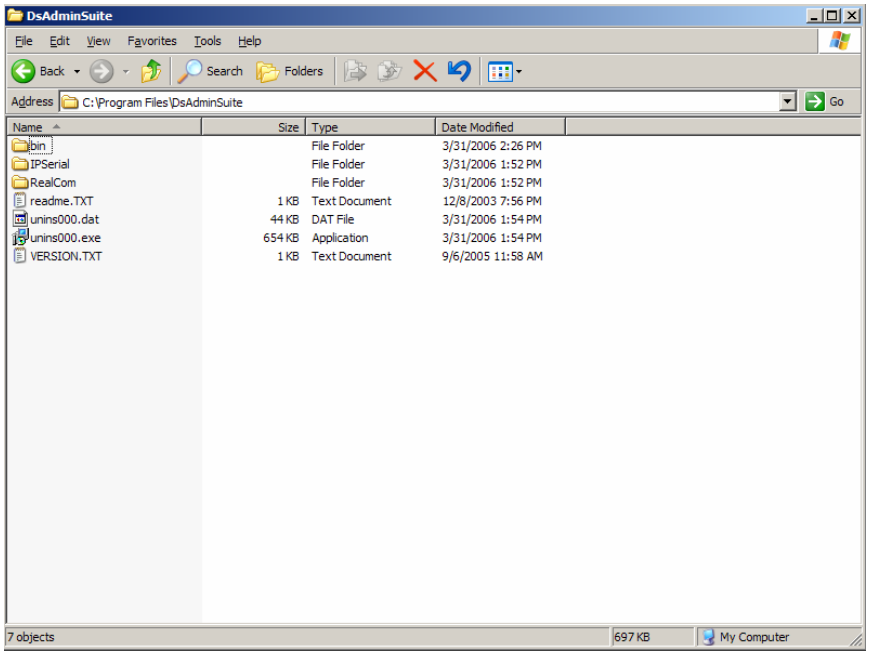
For programmers who are familiar with serial communication, IP Serial Library provides well-designed function calls that have the same style as the PComm Library.

IP Serial Library is amazingly simple and easy to understand. By including it in your VB, C, or Delphi programming environment, you can program your own TCP/IP application with the ability to control serial communication parameters.

5200-N uses 2 TCP ports for communication between the 5200-N and host computer's Real COM driver. 5200-N uses a data port and command port to provide pure data transfer without decode and encode. Compared to using only one TCP port to control serial communication (such as RFC 2217), IP Serial Library uses a command port to communicate with 5200-N from the user's program. IP Serial Library not only runs with excellent efficiency but also runs without any decode or encode problems.

How to install IP Serial Library

IP Serial Lib comes with the 5200-N Administration Suite. Refer to the IPSerial directory for more details about the function definitions.


DsAdminSuite
File Edit View Favorites Tools Help
Back Search Folders
Address C:\Program Files\DsAdminSuite
Go
Name Size Type Date Modified
bin File Folder 3/31/2006 2:26 PM
IPSerial File Folder 3/31/2006 1:52 PM
RealCom File Folder 3/31/2006 1:52 PM
readme.TXT 1 KB Text Document 12/8/2003 7:56 PM
unins000.dat 44 KB DAT File 3/31/2006 1:54 PM
unins000.exe 654 KB Application 3/31/2006 1:54 PM
VERSION.TXT 1 KB Text Document 9/6/2005 11:58 AM
7 objects
697 KB
My Computer

IP Serial LIB Function Groups

Server Control	Port Control	Input/Output Data	Port Status Inquiry	Miscellaneous
nsio_init	nsio_open	nsio_read	nsio_lstatus	nsio_break
nsio_end	nsio_close	nsio_SetReadTimeouts	nsio_data_status	nsio_break_on
nsio_resetserver	nsio_ioctl	nsio_write		nsio_break_off
nsio_checkalive	nsio_flowctrl	nsio_SetWriteTimeouts		nsio_breakcount
	nsio_DTR			
	nsio_RTS			
	nsio_lctrl			
	nsio_baud			
	nsio_resetport			

Example Program

```
char 5200-N-Nip="192.168.1.10";
char buffer[255];                                   /*data buffer, 255 chars */
int port = 1;                                       /*1st port */
int portid;                                         /* port handle */
nsio_init();                                        /*initial IP Serial Library */
portid = nsio_open(5200-Nip, port);                 /*1st port, 5200-N IP=192.168.1.10 */
nsio_ioctl(portid, B9600, (BIT_8 | STOP_1 |         /*set 9600, N81 */
P_NONE) );
sleep(1000);                                        /* wait for 1000 ms for data */
nsio_read(port, buffer, 200);                       /* read 200 bytes from port 1 */
nsio_close(portid);                                 /* close this serial port */
nsio_end();                                         /* close IP Serial Library */
```

A

Pinouts and Cable Wiring

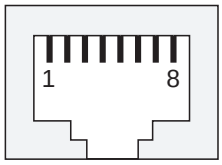
The following topics are covered in this appendix:

- **Port Pinout Diagrams**
  - Ethernet Port Pinouts
  - Serial Port Pinouts
- **Cable Wiring Diagrams**
  - Ethernet Cables
  - Serial Cables

Port Pinout Diagrams

Ethernet Port Pinouts

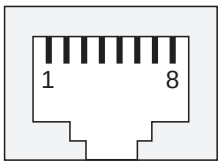
Pin	Signal
1	Tx+
2	Tx-
3	Rx+
6	Rx-



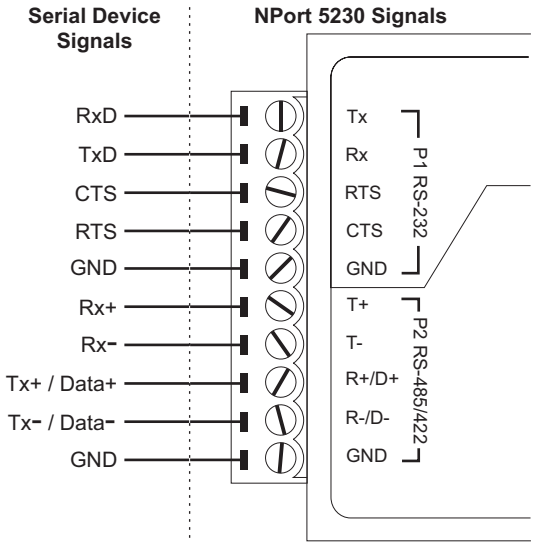
Serial Port Pinouts

8-pin RJ45 RS-232 Port Pinouts for 5210-N/5210-N-T

Pin	RS-232
1	DSR
2	RTS
3	GND
4	TxD
5	RxD
6	DCD
7	CTS
8	DTR

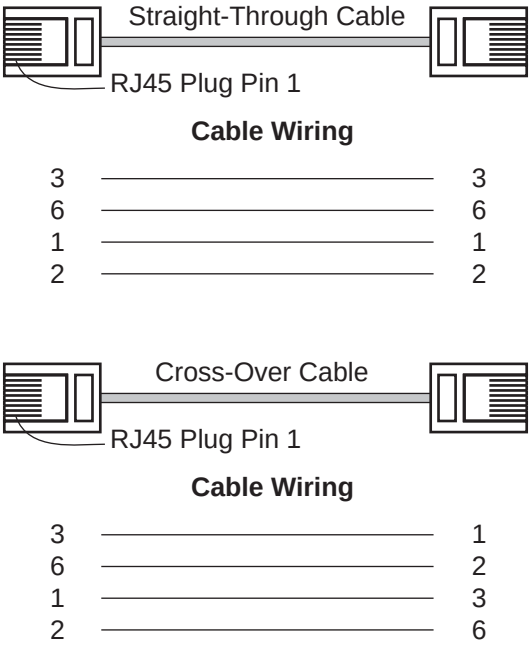


Terminal Block RS-232 & RS-422/485 Pinouts for 5230-N/5230-N-T



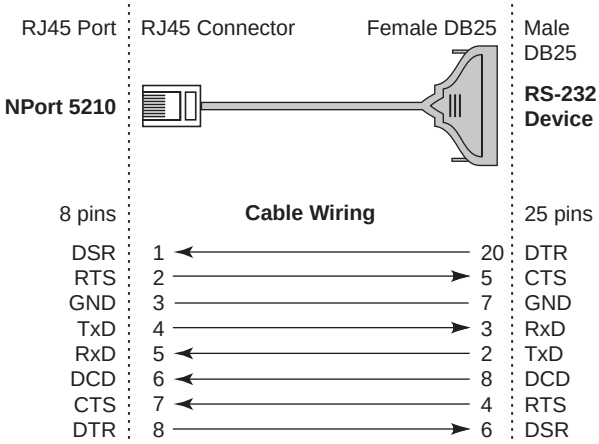
Cable Wiring Diagrams

Ethernet Cables

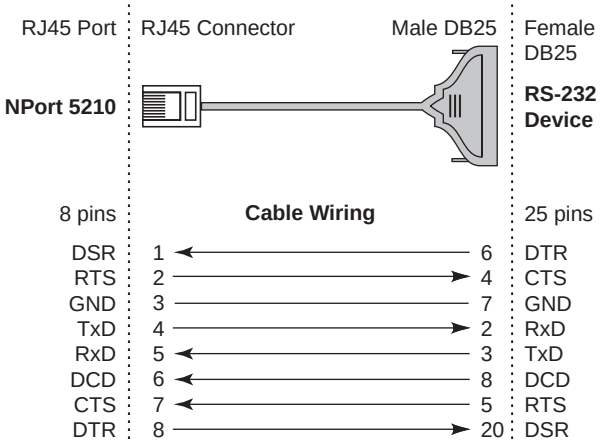


Serial Cables

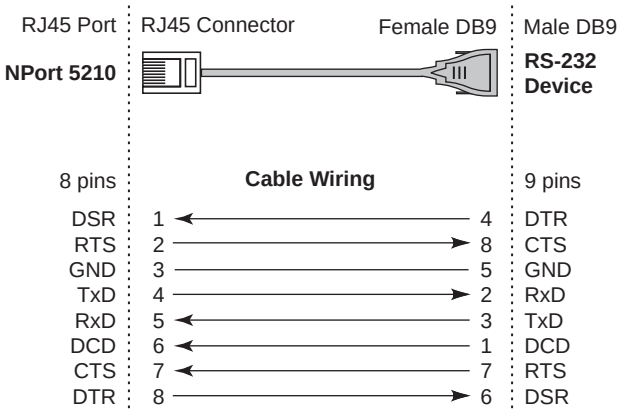
8-pin RJ45 to DB25 Female for 5210-N/5210-N-T (Cable Name: CBL-RJ45F25-150)



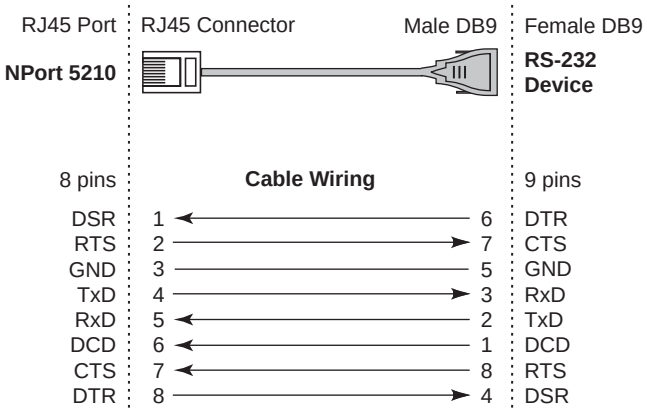
8-pin RJ45 to DB25 Male for 5210-N/5210-N-T (Cable Name: CBL-RJ45M25-150)



8-pin RJ45 to DB9 Female for 5210-N/5210-N-T (Cable Name: CBL-RJ45F9-150)



8-pin RJ45 to DB9 Male for 5210-N/5210-N-T (Cable Name: CBL-RJ45M9-150)



B

Well Known Port Numbers

In this appendix, which is included for your reference, we provide a list of Well Known port numbers that may cause network problems if you set 5200-N to one of these ports. Refer to RFC 1700 for Well Known port numbers, or refer to the following introduction from the IANA.

The port numbers are divided into three ranges: the Well Known Ports, the Registered Ports, and the Dynamic and/or Private Ports.

The Well Known Ports range from 0 through 1023.

The Registered Ports range from 1024 through 49151.

The Dynamic and/or Private Ports range from 49152 through 65535.

The Well Known Ports are assigned by the IANA, and on most systems, can only be used by system processes or by programs executed by privileged users. The following table shows famous port numbers among the well-known port numbers. For more details, please visit the IANA website at http://www.iana.org/assignments/port-numbers.

TCP Socket	Application Service
0	reserved
1	TCP Port Service Multiplexor
2	Management Utility
7	Echo
9	Discard
11	Active Users (systat)
13	Daytime
15	Netstat
20	FTP data port
21	FTP CONTROL port
23	Telnet
25	SMTP (Simple Mail Transfer Protocol)
37	Time (Time Server)
42	Host name server (names server)
43	Whois (nickname)

TCP Socket	Application Service
49	(Login Host Protocol) (Login)
53	Domain Name Server (domain)
79	Finger protocol (Finger)
80	World Wide Web HTTP
119	Network News Transfer Protocol (NNTP)
123	Network Time Protocol
213	IPX
160 – 223	Reserved for future use

UDP Socket	Application Service
0	reserved
2	Management Utility
7	Echo
9	Discard
11	Active Users (systat)
13	Daytime
35	Any private printer server
39	Resource Location Protocol
42	Host name server (names server)
43	Whois (nickname)
49	(Login Host Protocol) (Login)
53	Domain Name Server (domain)
69	Trivial Transfer Protocol (TETP)
70	Gopher Protocol
79	Finger Protocol
80	World Wide Web HTTP
107	Remote Telnet Service
111	Sun Remote Procedure Call (Sunrpc)
119	Network News Transfer Protocol (NNTP)
123	Network Time Protocol (NTP)
161	SNMP (Simple Network Mail Protocol)
162	SNMP Traps
213	IPX (Used for IP Tunneling)

C

SNMP Agents with MIB II & RS-232 like groups

5200-N has built-in SNMP (Simple Network Management Protocol) agent software that supports SNMP Trap, RFC1317 RS-232 like groups and RFC 1213 MIB-II. The following table lists the standard MIB-II groups, as well as the variable implementation for 5200-N.

RFC1213 MIB-II supported SNMP variables:

System MIB	Interfaces MIB	IP MIB	ICMP MIB
SysDescr	itNumber	ipForwarding	IcmpInMsgs
SysObjectID	ifIndex	ipDefaultTTL	IcmpInErrors
SysUpTime	ifDescr	ipInreceives	IcmpInDestUnreachs
SysContact	ifType	ipInHdrErrors	IcmpInTimeExcds
SysName	ifMtu	ipInAddrErrors	IcmpInParmProbs
SysLocation	ifSpeed	ipForwDatagrams	IcmpInSrcQuenchs
SysServices	ifPhysAddress	ipInUnknownProtos	IcmpInRedirects
	ifAdminStatus	ipInDiscards	IcmpInEchos
	ifOperStatus	ipInDelivers	IcmpInEchoReps
	ifLastChange	ipOutRequests	IcmpInTimestamps
	ifInOctets	ipOutDiscards	IcmpTimestampReps
	ifInUcastPkts	ipOutNoRoutes	IcmpInAddrMasks
	ifInNUcastPkts	ipReasmTimeout	IcmpOutMsgs
	ifInDiscards	ipReasmReqds	IcmpOutErrors
	ifInErrors	ipReasmOKs	IcmpOutDestUnreachs

System MIB	Interfaces MIB	IP MIB	ICMP MIB
SysServices	ifInUnknownProtos	ipReasmFails	IcmpOutTimeExcds
	ifOutOctets	ipFragOKs	IcmpOutParmProbs
	ifOutUcastPkts	ipFragFails	IcmpOutSrcQuenchs
	ifOutNUcastPkts	ipFragCreates	IcmpOutRedirects
	ifOutDiscards	ipAdEntAddr	IcmpOutEchos
	ifOutErrors	ipAdEntIfIndex	IcmpOutEchoReps
	ifOutQLen	ipAdEntNetMask	IcmpOutTimestamps
	ifSpecific	ipAdEntBcastAddr	IcmpOutTimestampReps
		ipAdEntReasmMaxSize	IcmpOutAddrMasks
		IpNetToMediaIfIndex	IcmpOutAddrMaskReps
		IpNetToMediaPhysAddress	
		IpNetToMediaNetAddress	
		IpNetToMediaType	
		IpRoutingDiscards	

UDP MIB	TCP MIB	SNMP MIB
UdpInDatagrams	tcpRtoAlgorithm	snmpInPkts
UdpNoPorts	tcpRtoMin	snmpOutPkts
UdpInErrors	tcpRtoMax	snmpInBadVersions
UdpOutDatagrams	tcpMaxConn	snmpInBadCommunityNames
UdpLocalAddress	tcpActiveOpens	snmpInASNParseErrs
UdpLocalPort	tcpPassiveOpens	snmpInTooBigs
	tcpAttempFails	snmpInNoSuchNames
Address Translation MIB	tcpEstabResets	snmpInBadValues
AtIfIndex	tcpCurrEstab	snmpInReadOnlys
AtPhysAddress	tcpInSegs	snmpInGenErrs
AtNetAddress	tcpOutSegs	snmpInTotalReqVars

Address Translation MIB	TCP MIB	SNMP MIB
AtNetAddress	tcpRetransSegs	snmpInTotalSetVars
	tcpConnState	snmpInGetRequests
	tcpConnLocalAddress	snmpInGetNexts
	tcpConnLocalPort	snmpInSetRequests
	tcpConnRemAddress	snmpInGetResponses
	tcpConnRemPort	snmpInTraps
	tcpInErrs	snmpOutTooBigs
	tcpOutRsts	snmpOutNoSuchNames
		snmpOutBadValues
		snmpOutGenErrs
		snmpOutGetRequests
		snmpOutGetNexts
		snmpOutSetRequests
		snmpOutGetResponses
		snmpOutTraps
		snmpEnableAuthenTraps

RFC1317: RS-232 MIB objects

Generic RS-232-like Group	RS-232-like General Port Table	RS-232-like Asynchronous Port Group
rs232Number	rs232PortTable	rs232AsyncPortTable
	rs232PortEntry	rs232AsyncPortEntry
	rs232PortIndex	rs232AsyncPortIndex
	rs232PortType	rs232AsyncPortBits
	rs232PortInSigNumber	rs232AsyncPortStopBits
	rs232PortOutSigNumber	rs232AsyncPortParity
	rs232PortInSpeed	
	rs232PortOutSpeed	

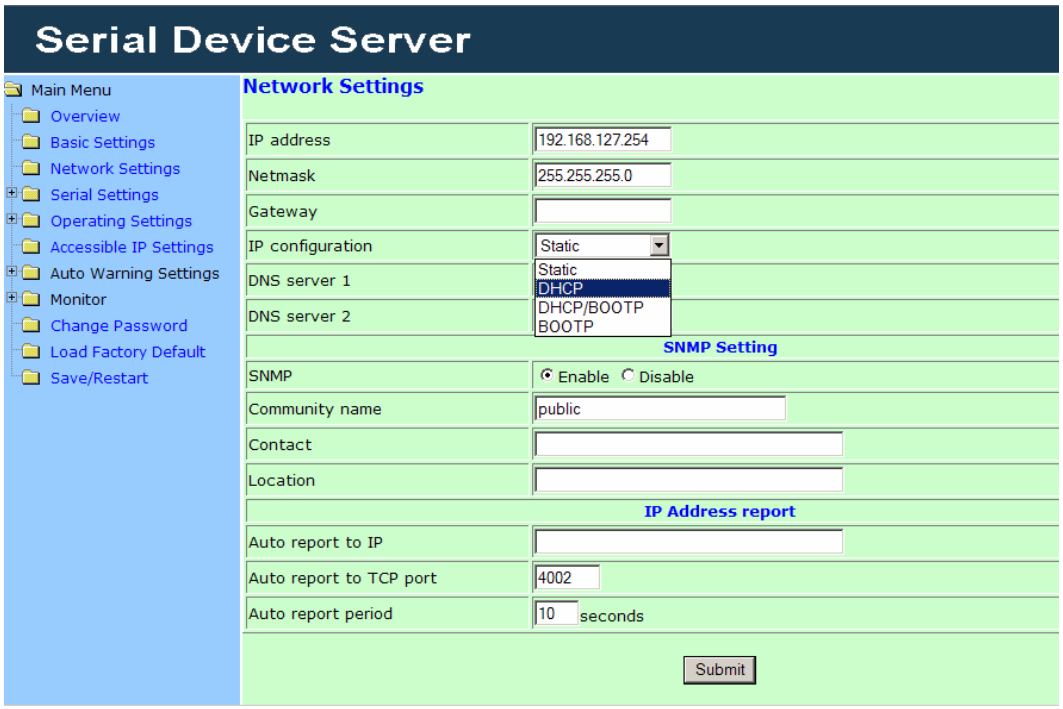
The Input Signal Table	The Output Signal Table
rs232InSigTable	rs232OutSigTable
rs232InSigEntry	rs232OutSigEntry
rs232InSigPortIndex	rs232OutSigPortIndex
rs232InSigName	rs232OutSigName
rs232InSigState	rs232OutSigState

D

Auto IP Report Protocol

5200-N Series provides several ways to configure Ethernet IP addresses. One is DHCP Client. When you set up 5200-N to use DHCP Client to configure Ethernet IP addresses, it will automatically send a DHCP request over the Ethernet to find the DHCP Server. The DHCP Server will then send an available IP address to the 5200-N. The 5200-N will use this IP address for a period of time after receiving it, but the 5200-N will send a DHCP request again to the DHCP Server. Once the DHCP Server realizes that this IP address is to be released to other DHCP Clients, the 5200-N then will receive a different IP address. For this reason, users sometimes find that the 5200-N will use different IP addresses, not a fixed IP address.

In order to know which IP address the 5200-N is using, you need to set up parameters in Network Settings via Web browser. The figure below shows the 5200-N Web console configuration window. Enter the IP address and the Port number of the PC to which you want to send this information.



Auto IP Report Format

“ ”, 4 bytes	Info[0]	Info[1]	…	Info[n]

Info [n]

Field	ID	Length	Data
Length	1	1	Variable, Length is “Length Field”

ID List

ID Value	**Description**	**Length**	**Note**
1	Server Name	Variable	ASCII char
2	Hardware ID	2	Little-endian
3	MAC Address	6	6 bytes MAC address. If the MAC address is "00-90-E8-01-02-03", the MAC[0] is 0, MAC[1] is 0x90(hex), MAC[2] is 0xE8(hex), and so on.
4	Serial Number	4, DWORD	Little-endian
5	IP Address	4, DWORD	Little-endian
6	Netmask	4, DWORD	Little-endian
7	Default Gateway	4, DWORD	Little-endian
8	Firmware Version	4, DWORD	Little-endian Ver1.3.4= 0x0103040
9	AP ID	4, DWORD	Little-endian

AP ID & Hardware ID Mapping Table

AP ID	**Hardware ID**	**Product**
0x80005000	0x0504	5410
0x80005000	0x0534	5430
0x80005000	0x1534	5430I
0x80000312	0x0312	5230-N
0x80000312	0x0322	5210-N
0x80000312	0x0332	5232-N
0x80000312	0x1332	5232I-N
0x80005610	0x5618	5610-8
0x80005610	0x5613	5610-16
0x80005610	0x5638	5630-8
0x80005610	0x5633	5630-16